

**Bureau of Land Management**

# **Serious Accident Investigation**

Draft BLM Manual Handbook 1112-3

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## Preface

As a member of a Serious Accident Investigation Team (SAIT), you will face one of the most significant challenges in your career. Your responsibility is to establish the facts and develop the findings and causal factors of an accident that has resulted in a loss of life, significant injuries, or substantial damage to property. You must then make recommendations that will help prevent similar accidents from occurring in the future. It is imperative that you remain totally unbiased, keeping an open mind to all situations that you may encounter. The event that you are trying to understand has had an enormous emotional impact on those involved and may have an emotional impact on you and your team. You must remain cognizant of that fact throughout your investigation, and take the necessary time to ensure that the impact of the investigation remains minimal to your team members, the unit's employees, and the families of those involved.

A full review of all evidence by the Chief Investigator is essential. However, there will be circumstances where it is necessary to control disclosure of confidential and sensitive matters (e.g., HIV infection, disciplinary action not related to the accident) with the team and in the final report. Each of these exceptions and the consequences of nondisclosure should be fully discussed with the Team Leader to determine appropriate actions.

One last but very important item: If criminal activity is suspected, the SAI Team must to notify the agency DASHO, the FBI, and other appropriate law enforcement agencies. Do not resume the investigation unless a determination is made that there was no criminal activity.

## Chapter 1—Administrative Information and Overview

### 1.1. PURPOSE

A. An accident investigation is the methodical collection of evidence (facts), and the analysis and interpretation of the evidence. The fundamental purpose is to identify the cause(s) of the accident and to recommend corrective actions to prevent or minimize the chance of a reoccurrence.

B. This Serious Accident Investigation Handbook provides guidance on how to conduct a serious accident investigation and perform the associated administrative tasks. It also includes an investigation protocol for wildland fire shelter deployments, entrapments, and fatalities.

### 1.2. OBJECTIVE

A. An investigation must be initiated promptly and properly to ensure that important evidence is not lost, misplaced, or contaminated. This handbook provides essential steps for serious accident investigations, regardless of the organizational level involved. It teaches Serious Accident Investigation Team (SAIT) members how to:

1. Conduct a comprehensive accident investigation.
2. Identify findings and causes that led to the accident..
3. Make recommendations for corrective actions to prevent similar accidents from occurring in the future.

B. This handbook also shows how to prepare and submit briefings and documents required by the Department of the Interior (DOI) and the Bureau of Land Management (BLM).

### 1.3. AUTHORITY

The authority to investigate accidents is established in the Code of Federal Regulations - 29 CFR 1960, Executive Order 12196, DOI 485 DM, and Bureau of Land Management Manual 1112.

### 1.4. SCOPE

A. This handbook is primarily designed to provide guidelines for SAITs. However, the process outlined in this guide can be applied, in whole or in part, to all accident investigations regardless of severity.

B. Training on the use of this handbook meets the DOI and BLM requirements for Chief Investigator training.

## 1.5. TYPES OF ACCIDENTS AND INVESTIGATIONS

A. DOI Serious Accidents. DOI defines a serious accident as a Department-related incident that is a result of an employee action or Departmental condition that results in:

1. One or more job-related fatalities or imminently fatal injuries or illnesses to employees, or
2. Three or more persons hospitalized as a result of the same accident, or
3. Property damage (including site mitigation or cleanup) and/or operating loss of \$250,000 or more, or
4. Consequences that the Bureau Designated Agency Safety and Health Official (DASHO) or Bureau Safety Manager judges to warrant further investigation using these serious accident investigation procedures.
5. There are fire-related accidents that do not meet the requirements of a serious accident that are investigated by an SAIT. Wildland and prescribed fire accident investigation is covered in Chapter 9.

B. BLM Serious Accidents. In accordance with BLM Handbook 1112-1, accidents meeting the DOI definition of a serious accident, which occur solely as a result of BLM operations, will be investigated using this guide. If the serious accident occurs during wildland fire management operations, BLM Handbook 9213-1 (Standards for Fire and Aviation Operations—commonly referred to as the Red Book) will also be used.

C. Interagency Wildland Fire Accidents. DOI and Forest Service (FS) wildland firefighting that results in a “serious fire-related accident” are investigated in accordance with the Memorandum of Understanding (MOU) between the U.S. Department of the Interior and the U.S. Department of Agriculture. The procedures outlined in this handbook are consistent with that memorandum.

D. Other Interagency Accidents. The degree of BLM participation in joint investigations or the involvement of other Federal, State, or municipal agencies in BLM accident or incident investigations depends on the circumstances of the accident or incident and any MOUs or interagency agreements in effect.

E. Aviation Accidents. Aviation accidents are investigated by the DOI Office of Aircraft Services (OAS) or by the National Transportation Safety Board (NTSB) in accordance with the Office of Fire and Aviation Manual, 352 DM - Aviation Safety, and Federal Aviation Administration regulations. BLM does not get involved in those accidents. Smokejumping,

helicopter rappelling, and aviation short-haul accidents are considered aviation accidents until such time as the employee or equipment is safely on the ground.

F. Collateral Investigations. Collateral investigations are conducted independently and apart from the serious accident investigation to make a record of the facts for use in litigation, claims, and other administrative and disciplinary actions. Collateral investigations may include the following: Board of Inquiry, Occupational Safety and Health Administration (OSHA) Inspection, or a law enforcement investigation.

G. SAIT Investigation Priority. BLM serious accident investigations take precedence over all other investigations.

H. Criminal Investigations. If criminal activity is suspected, the SAI Team must to notify the agency DASHO, the FBI, and other appropriate law enforcement agencies. Do not resume the investigation unless a determination is made that there was no criminal activity.

## 1.6. SERIOUS ACCIDENT INVESTIGATION TEAM COMPOSITION

A. Authority to authorize the formation of an SAIT rests with the Bureau's DASHO. This authority has been delegated to the Bureau Safety Manager and the Director, Office of Fire and Aviation (OF&A) (for fire-management-related accidents only).

B. Once authorized, a nationally appointed SAIT will be composed of a Team Leader, Chief Investigator, and Accident Investigation Advisor. A Delegation of Authority Memorandum documents the official appointment of the Team Leader. See Exhibit 1-1 for an example. For complex investigations, technical specialists, a documentation specialist, subject matter experts, and interagency representatives are added as requested by the Team Leader or the Chief Investigator.

C. Use of a Trained Investigator. A Trained Investigator (contractor) is someone from outside the affected agencies who is brought in under contract to investigate the accident. The SAIT is the desired approach for the investigation of serious accidents. However, in isolated events, where the accident causes appear to be unrelated to Departmental management processes and controls, the Bureau DASHO may elect to use a Trained Investigator in lieu of the SAIT. The Bureau Safety Manager and OF&A also have the option of using a Trained Investigator instead of a BLM Chief Investigator on any accident investigation.

D. Qualifications, duties, and responsibilities of team members are:

1. Team Leader. The Team Leader is normally a line officer or higher-level agency official, GS-14 or above. Individuals are selected based upon the severity of the accident and the level of management representation needed, and should be of equivalent or higher grade than the manager of the organizational unit incurring the accident. The Team Leader must be

knowledgeable about BLM policy and should be selected from outside the State incurring the accident.

a. Qualifications. Must be a senior management official, GS-14 or above. Must have completed the BLM Serious Accident Investigation Team Leader Training Course.

b. Duties and Responsibilities.

- Organizes, conducts, and controls the investigation effort with the assistance of the Chief Investigator.
- Contacts the unit that had the accident to determine the status of the local investigation and to obtain other pertinent information.
- Provides entrance briefings and closeout briefings with affected personnel and agency officials.
- Conducts investigation team meetings and coordinates information exchange between team members.
- Maintains liaison with the Field/District Office Manager, State Director, and Washington Office.
- Approves requests for resources from the Chief Investigator and approves team member release from or inclusion in the investigation.
- Forwards the 24 Hour Preliminary Report and the 72 Hour Expanded Report to the Bureau Safety Manager, State Director, and Director, Office of Fire and Aviation (Fire Accidents).
- Arranges local transportation, obtains a suitable local workplace, provides for the safety of the team, and ensures the security of the meeting place and the investigation information gathered.
- Coordinates with local law enforcement, the coroner's office, and others as required.
- Confirms that drug testing, autopsies, medical reports, and other appropriate tests are initiated when required.
- Arranges Critical Incident Stress Debriefing (CISD) for investigation team members when necessary.

- Coordinates with the unit Public Information Officer for all media releases.
- Prepares and presents the Factual Report and Management Evaluation Reports to the Bureau Safety Manager and the Director, Office of Fire and Aviation if it is a fire investigation.

2. Chief Investigator. The Chief Investigator is responsible for the direct management of the technical investigation activities.

a. Qualifications.

- A fully qualified Safety and Health Specialist, GS-0018 or 0803 series. Must have completed a basic accident investigation course (e.g., National Safety Council or OSHA accident investigation course); served as an Accident Investigation Advisor on an accident investigation team; and satisfactorily completed the BLM Chief Investigator Training Course.
- The Chief Investigator may, upon approval of the Bureau Safety Manager, be a qualified accident investigator from outside the Bureau.

b. Duties and Responsibilities.

- Documents the sequence of events leading up to, during, and following the accident; assists the team in identifying findings and developing causes of the accident; and recommends possible solutions to prevent this type of accident from occurring in the future.
- Identifies additional team staffing and resource needs, such as technical specialists, documentation specialists, law enforcement, communications, and forensic experts (based upon the technical complexity of the investigation).
- Ensures that the investigation addresses pertinent safety issues and concerns.
- Works with the organization having jurisdiction over the accident site to ensure security and control of the accident site.
- Works closely with the Team Leader to draft the 72-Hour Report, the Factual Report, and the Management Evaluation Report.

3. Accident Investigation Advisor. The Accident Investigation Advisor is a safety and occupational health professional responsible for advising the team on safety issues pertinent to the investigation in accordance with OSHA and BLM policies.

a. Qualifications.

- Must be a fully qualified Safety and Health Specialist, GS-0018 or 0803 Series. Must have completed a basic accident investigation course (e.g., National Safety Council or OSHA accident investigation course).

b. Duties and Responsibilities.

- Advises the team on the conduct of the investigation to ensure compliance with OSHA and BLM requirements.
- Ensures a Risk Assessment is completed for the investigation team's operations and activities.
- Ensures team members have the necessary equipment and training for any activity they will be performing.
- Ensures team members utilize the required personal protective clothing and equipment as prescribed by the Risk Assessment.

4. Technical Specialists. Technical Specialists are individuals with specific technical skills needed to support the accident investigation.

a. Qualifications. Possess sufficient technical skills in a specialty area required to provide expert advice in support of the investigation.

b. Duties and Responsibilities. Work directly with the Chief Investigator to provide technical support to the investigation until released by the Team Leader.

Note: The need for a documentation specialist in complex investigations should not be overlooked when requesting the support of Technical Specialists. The documentation specialist is an individual assigned to the Serious Accident Investigation Team to provide document management and to provide writer/editor support. Their qualifications should include skill in writing, editing, word processing, and records management. Their duties and responsibilities include working directly for the Team Leader to provide document management support to the investigation until released and to work with the Chief Investigator to develop a system to ensure that all evidence collected by the investigation team is safeguarded.

## 1.7. INVESTIGATION PROCESS

While each accident investigation is different, the following steps will almost always occur in BLM accident investigations: (A flowchart of the Accident Investigation Process is provided in Exhibit 1-2)

- A. On-call preparation
- B. Notification and travel to the city nearest to the accident
- C. Initial meeting with other team members
- D. Initial meeting with manager of the unit sustaining the accident
- E. Initial site survey
- F. Witness interviews and statements
- G. Evidence collection
- H. Development of accident sequence, findings, causes and recommendations
- I. Report preparation
- J. Close-out briefings with management

#### 1.8. INVESTIGATION PRODUCTS

When complete, the investigation needs to have produced the following:

- A. A chronology of the events leading up to the accident, the accident sequence, and the events that occurred after the accident
- B. Findings that sustained the accident sequence
- C. Causes of the accident
- D. Recommendations for correcting all causes and findings
- E. Other findings, which if left uncorrected, could lead to another accident

#### 1.9. INVESTIGATION REPORTS

A number of briefings and reports are required by DOI and BLM regulations. This section discusses them briefly; however, more detailed discussion can be found in Chapter 11.

A. Preliminary Report (24-Hour Report). This document contains the first details of the accident. It provides preliminary factual information about the accident and may contain preventive measures or recommendations of an emergency nature.

B. Expanded Report (72-Hour Report). This document contains a brief narrative of the accident based on factual information gathered onsite.

C. Safety Alert. If a safety hazard or action item is identified during the course of the accident investigation that requires immediate action, a Safety Alert will be developed to address the concern and recommend corrective action.

D. Factual Report. This document contains a chronology of the events leading up to, during, and after the accident; findings that sustained the accident sequence and the causes of the accident.

E. Management Evaluation Report. This document contains an executive summary of the factual report, the Findings from the Factual Report, Causes identified, any conclusions that the SAI Team makes, and recommendations to prevent similar accidents. Other findings that, if left uncorrected, could lead to future accidents are also included in this report.

#### 1.10. REPORT USE

Information collected and developed during the course of an accident investigation is to be used for accident prevention purposes only. It shall not be used for purposes such as:

- A. Evidence (or to obtain evidence) to determine the misconduct of agency personnel
- B. Evidence to determine the disciplinary responsibility of agency personnel
- C. Evidence to assert affirmative claims on behalf of the Government
- D. Evidence to determine the liability of the Government for property damage, injuries, or death

## Chapter 1—Administrative Information and Overview

### EXHIBIT 1-1

#### Sample Delegation of Authority Letter

Date:

Memorandum

To: \_\_\_\_\_, Team Leader

From:

Subject: Delegation of Authority - Serious Accident Investigation

This memorandum formalizes your appointment as Team Leader to investigate the accident that occurred on (location and date). Your duties include, but are not limited to:

1. Organizing, conducting, and controlling the accident investigation.
2. Providing for in-briefings and out-briefings with affected personnel and agency officials.
3. Coordinating information exchange between team members, local law enforcement, the coroner's office, and others.
4. Maintaining liaison with affected units.
5. Approving requests and allocating funding for resources.
6. Requesting technical, logistical, or other support as required to conduct the investigation.
7. Providing daily briefings to the Bureau Safety Manager and the Director, Office of Fire and Aviation.
8. Providing the following formal briefings/reports:
  - a. Preliminary Report (24 hours)
  - b. Expanded Report (72 hours)
  - c. Factual and Management Reports (45 days)

You will be provided a charge code to pay for all travel and associated costs.

(Name of official authorizing the investigation)

(Title)

cc:

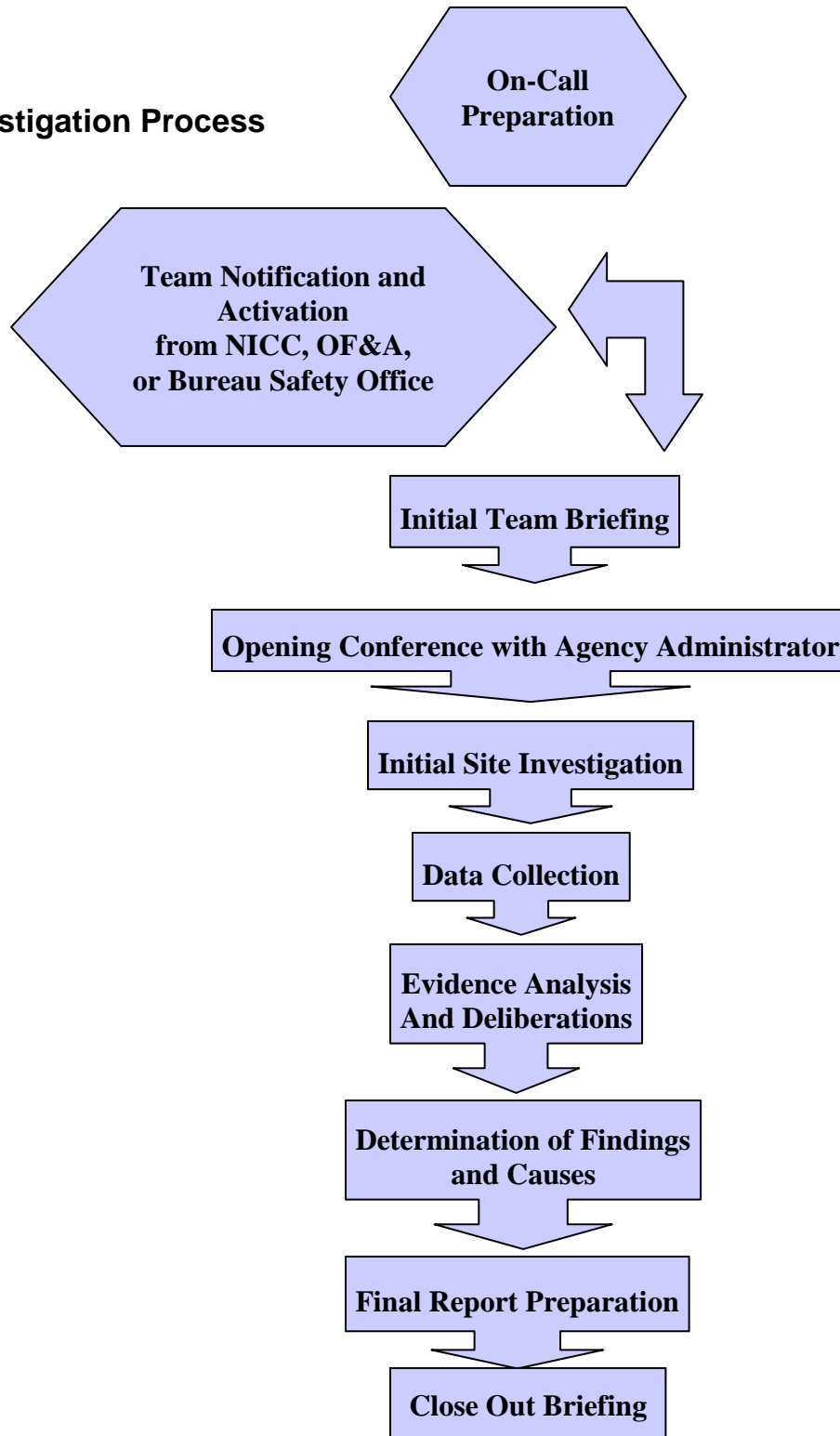
Official case file

Bureau Safety Manager (if appropriate)

## Chapter 1—Administrative Information and Overview

### EXHIBIT 1-2

#### Accident Investigation Process



## Chapter 2—Team Preparation and Activation

### 2.1. INTRODUCTION

The hours after a major accident can be confusing and stressful for most of the people involved. As a member of an activated Serious Accident Investigation Team (SAIT), you should be prepared to dispatch to the location of the incident as soon as possible. The first responsibility of all emergency response team members is to arrive expeditiously and safely to the site of the incident. (Team composition is covered in Chapter 1.)

### 2.2. PREPARATION

As a team member, you should preplan what you will do if activated. On Call SAI Team members should contact their Team Leader at the start of the on-call period just to touch base. You should have a list of personal items you will need and a list of the most common accident investigation tools you will likely use. Exhibit 2-1 provides a list of items that may be needed during an investigation. Depending upon the agency, accident investigation kits may be available in regional or State offices. If this is the case, the safety manager will automatically send the kit to the accident site. Alternately, you can prepare your own kit to take with you or contact BLM's Office of Fire and Aviation (OF&A) Safety Manager and have a kit sent from there to the accident site.

### 2.3. NOTIFICATION

A. Upon activation, record the following information on the Preliminary Notice Worksheet (Exhibit 2.2).

- Accident/incident specifics: what happened, where, and when accident occurred
- Point of Contact (POC) telephone/call back number
- Record OF&A, BOS, or NICC POC (who and what they said)
- Contact information for onsite POC
- Team report location
- Team report time
- How to get there (who will be making travel arrangements)
- Confirmation of other team members' status (estimated time of arrival - ETA, etc.)
- Confirm "Just in Time" training video is available. If not, you will need to bring one
- Confirm accident investigation kit is enroute or available. If not, you will need to bring or get one from NIFC.

Note: All of the information may not be available immediately.

B. Once mobilized, you should make immediate plans to depart so that, if possible, you arrive at the scene within 24 hours of the call. Do not delay your departure while attempting to contact other team members or to gather additional information on the incident.

## 2.4. TRAVEL PLANS

If travel plans are not already made for the team, you should make your own plans, using the most efficient approved method. Charge all authorized expenses to your Government credit card. The organization sustaining the accident will provide reimbursement charge codes.

## 2.5. INITIAL TEAM MEETING

The Team Leader should get the team together before the initial briefing with the affected unit. It is preferable to do this offsite. It allows team members to meet each other, organize their thoughts, and get an understanding of their roles. At this meeting, the Team Leader will ask you to explain how you plan to proceed. Provide the team members with an overview of your approach to the investigation (e.g., getting preliminary information from the agency, documenting the site, interviewing witnesses, collecting other evidence). If you plan to use a formal analytical process such as MORT or Fault Tree Analysis, tell the team and give them a short explanation of how that process works. Either you or the Team Leader should ensure the following information is conveyed to the team:

- Make sure the team understands the need for confidentiality of the findings until the investigation is complete and the report is released.
- Make sure the team knows they should not take any independent actions without prior approval of the Chief Investigator.
- Have the Accident Investigation Advisor remind team members of the need to maintain their own personal safety.
- Have the Accident Investigation Advisor discuss any known hazards and protective measures that will be required. Include both the local area and work sites.
- Make sure team members understand each other's roles and general duties.
- Discuss the immediate plan of action.
- Discuss expectations regarding performance and conduct.
- Discuss need to be sensitive to local personnel and their feelings of loss.
- Be careful when discussing the investigation in public settings (e.g., hallways and other common areas, such as restaurants).
- Discuss the standards for confidentiality/freelancing ("freelancing" is following your own investigative trail without coordinating with the Chief Investigator).
- Do not disturb any physical evidence at the accident site.
- Keep written information secure.

**2.6. TEAM ORGANIZATION**

The team cannot be effective if it is not organized. Lodging, transportation needs, work areas, and other logistical needs should be taken care of as soon as the team arrives at the incident site. The Team Leader should contact the unit POC assigned to assist the SAI Team. Ask the POC to arrange for the items you need.

## Chapter 2—Team Preparation and Activation

### Exhibit 2-1

#### Accident Investigation Kit Contents

##### Basic Administrative Requirements

Serious Accident Investigation Manual Handbook 1112-3  
Agency Administrator's Guide to Critical Incident Management, PMS 926/NFES 1356  
Standards for Fire and Aviation Operations (Red Book)  
Glossary of Fire Terminology (PMS 205/NFES 1832)  
BLM Supervisor's Employee Casualty Guide  
Laptop computer/pocket computer/calculator  
Voice recorder (spare batteries and cassettes)  
Flashlight (spare batteries)  
Camera, 35-mm with date/time stamp (zoom/close-up, spare film slide and print)  
Clipboard  
Notepad  
Pencils/pens/markers  
100-foot measuring tape  
Ruler  
Compass

##### Optional Equipment

Polaroid camera  
Inclinometer  
Optical range finder  
Handheld GPS unit  
Magnifier, small  
Pocket multi-tool with case  
Screwdriver, flat tip  
Screwdriver, Phillips  
Pliers  
Graph paper

## Chapter 2—Team Preparation and Activation

### Exhibit 2-2

#### Preliminary Notice Worksheet

Date of Accident	Location of Accident
------------------	----------------------

#### Who is Contacting You

Name/Phone	Position	Organization (i.e., Bureau Safety Office, OF&A, NICC)
------------	----------	---

#### Injuries/Fatalities Details (if available)

Name(s)	Home Unit(s)	Age(s)
---------	--------------	--------

Estimated Property Damage	\$
---------------------------	----

Brief Description of Accident (who, what, when, where, how)
---

Initial Actions by Local Office
---------------------------------

Who is the Local Point of Contact (POC)

Name	Position	Phone Numbers
------	----------	---------------

Delegation of Authority letter

Signed (yes/no)	Sent To:
-----------------	----------

**Get the following information:**

Where do I go?

---



---

How am I traveling? \_\_\_\_\_

---

Confirm other team members' travel plans (if known). \_\_\_\_\_

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\_\_\_\_\_ Call the local POC and confirm that the "Just-in-Time" training package is available or on the way.

\_\_\_\_\_ Determine if there will be a co-team lead. Name: \_\_\_\_\_

\_\_\_\_\_ Confirm who from or how you will be getting the Delegation of Authority letter.

Get a cost/charge code from OF&A/NICC (if known) \_\_\_\_\_

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Note: Temporary charge codes from NICC are used only if a permanent charge code is not available at the time of Team deployment. Investigation costs will be charged to the respective State Office for non-fire-related accidents and to the specific fire for fire-related accidents.

## Chapter 3—Opening Conference

### 3.1. INTRODUCTION

The opening conference is an opportunity for you to get to know the managers and supervisors involved in the incident and for them to get to know you. This is an extremely valuable meeting.

### 3.2. OPENING CONFERENCE

A. The Team Leader should ask the Agency Administrator to give a complete and candid briefing to the team. All known facts, circumstances, and theories that the unit may have on the cause of the accident should be thoroughly covered. Begin to fill out the investigation documentation form located at Exhibit 3.1, with the facts provided by the Agency Administrator and agency staff.

B. The Team Leader should use the Investigation Team in-brief to conduct the formal part of the briefing. During the briefing, cover the general approach that the team will take, and explain the duties of the team members and what they will be looking for. State that recommendations will be made at the end of the investigation.

C. Any collateral investigations that are underway or planned should be discussed at this time. The BLM Serious Accident Investigation Team (SAIT) investigation takes priority over all other internal BLM investigations. Other investigations being conducted (e.g., OSHA, NTSB, FAA, local law enforcement) may be ongoing. Many times these agencies have seasoned investigators who will provide valuable information to the SAIT. The Team Leader must ensure that the SAI Team works with, not against, other authorized investigations.

D. Any evidence that has been collected by the unit to date should be turned over to the investigation team to be cataloged. The Team Leader will assign one of the SAIT members the responsibility of cataloging evidence. The Chain of Custody of any evidence collected during the course of the investigation must be maintained.

E. Senior representatives of the unit sustaining the loss may ask that the team address certain specific areas or issues. These should always be taken into consideration, but should not guide the investigation or interfere with the basic purpose of the investigation.

F. The team should request a safety briefing from the unit. The briefing should cover local conditions, such as weather, special field precautions, driving conditions, vehicle usage (e.g., use of four-wheel drive, ATVs, snow machines), political climate (e.g., as it may affect Government employees), and any other areas the team should be aware of.

G. The team should confirm who their Team Liaison with the unit is. The Team Liaison is the team's local point of contact (POC) with the unit for logistical needs. As much as possible,

all requests for equipment, information, and other resources should be directed to that person. The team should strive to reduce the impact of the investigation on the unit as much as possible.

H. The team should identify any working space, specialized equipment, office supplies, and administrative support that they know they will need at the time of the in-brief to the unit. Obtaining resource requirements for the investigation team should be a priority, but should also be consistent with the unit's requirement to continue/complete their mission.

### 3.3. SITE SECURITY

The team should obtain all information possible on the condition of the accident site; determine if any evidence has been removed or moved from its position; and determine if any special site entry requirements have been put into place. If any evidence has been removed, its location and the name of the POC should be given to the Team Leader or the Chief Investigator.

### 3.4. FAMILY LIAISON/PUBLIC AFFAIRS OFFICER

A. The unit should provide the Team Leader with the names and phone numbers of the Family Liaison and the Public Affairs Officer (PAO), as well as copies of any press releases or preliminary up-channel reports (e.g., the 24 Hour Report or Law Enforcement Serious Incident Reports) that may have been generated.

B. All information given by the team to non-BLM entities should come from a PAO, if possible. The Team Leader, working closely with the PAO, will need to make public announcements in some cases. Team members, including the Chief Investigator, should not make public announcements unless directed to do so by the Team Leader.

### 3.5. CRITICAL INCIDENT STRESS DEBRIEFING

As a general rule, it is best for the team to interview witnesses before the Critical Incident Stress Debriefing (CISD). The Team Leader should ascertain if a CISD has been conducted or is planned, how the employees are doing in general, and if the CISD liaison has any serious concerns. The Team Leader should also get the name of the CISD liaison in case members of the Investigation Team need counseling assistance during or after the investigation.

### 3.6. AUTOPSIES

A. The Team Leader should find out if an autopsy is planned. If so, request that samples of body fluids be analyzed for alcohol and drugs. The rules on autopsies vary from State to State. Most States require an autopsy if the death was unattended by a physician.

B. If an autopsy is not planned, determine if the family would agree to one if it is determined that the information gained would benefit the investigation.

Note: Survivors of firefighters who die in the line of duty are entitled to death benefits; normally, an autopsy is required. This fact should be presented to the family if they are uncertain about approving an autopsy. Refer to Chapter 9 for additional information.

## Chapter 3—Opening Conference

### Exhibit 3-1

#### Investigation Documentation Form

USDI - BLM		INVESTIGATION DOCUMENTATION FORM	
Personal Data – Victim			
Name:		Address:	
Telephone:			
Age:	Sex: M F	Job Title:	Grade/Series:
Date of employment:		Time in position:	
Training for job being performed at time of accident:			
Employee status:			
Nature of injuries:			
Accident Data			
How and why did the accident occur?			
Physical layout:			
Measurements:			
Sketches/Drawings: Yes No		Videos/Photos: Yes No	
Equipment Involved or Process			
Machine type:		Manufacturer:	
Model:			
Kind of process:			
Manufacturer's instructions: Yes No		Warning devices (detectors): Yes No	
Condition: Good Fair Poor		Misuse: Yes No	
Maintenance program: Yes No		Equipment inspection (logs, reports): Yes No	

Tasks performed:
How often is equipment used?
Energy sources and disconnecting means identified: Yes    No
Supervision or instruction provided to employees involved in accident: Yes    No
Witnesses
Public
Fellow Employees
Management
Safety and Health Program
Does organization/office have a safety or health program? Yes    No
Does the program address the type of hazard that resulted in the fatality/catastrophe? Yes    No

## Chapter 4—Initial Site Investigation

### 4.1. INTRODUCTION

The initial site investigation is the most important and revealing visit. The accident site must be secured and made safe before entering or visiting the site and evidence must be protected. The team should approach the site slowly and get the overall picture of what was going on and what the conditions were at the time of the accident. Landscape features, shadows, roadways, space allocation, type/location of equipment and people, should all be looked at from a distance to help establish the overall complexity of the scene.

### 4.2. COORDINATION WITH LAW ENFORCEMENT

Prior to departure to the site, the team should coordinate with law enforcement to see what their interest in the incident is and if they have any evidence that should be considered. If BLM law enforcement has sent out any preliminary reports, a copy should be given to the team. Should the investigation at any time identify any evidence that may indicate that a crime has occurred; the SAI Team must to notify the agency DASHO, the FBI, and other appropriate law enforcement agencies. Do not resume the investigation unless a determination is made that there was no criminal activity.

### 4.3. PREPARATION FOR SITE VISIT

The first priority is always to visit and return safely from the site. The team should wear any required personal protective equipment (PPE) when entering any work area or accident site and comply with all other site safety requirements. Ensure that all necessary equipment is identified and obtained prior to departing for the site. Adequate transportation, water, and protective clothing should be provided for each team member. Items such as adequate film for all cameras and adequate blank cassette tapes for tape recorders should be on hand. Prepare yourself mentally and emotionally for the site visit.

### 4.4. INITIAL SITE INVESTIGATION

A. Site Security. Any site security procedures that have been established prior to the Serious Accident Investigation Team's (SAIT) arrival should be complied with. The team may change these procedures once they evaluate the scene.

B. As Chief Investigator, you will usually want to look at the accident scene early in the investigation. Upon arriving, STOP. Your first observations and analysis of the scene are critical. Slow your team's approach and observe the overall picture. Do not move anything. Take photographs and make sketches. All site evidence must be documented on an evidence log.

It is very important to get an overall look of the accident area and at the exact site of the accident before any evidence is disturbed. The site should be approached from the same direction as the site is normally approached. The entire site should be taken into account. The position of major structures, utilities, roadways, benches, machinery, tools, and other items should be considered. The main tasks and the flow of work should be established. If there is evidence that may be easily disturbed, only the Chief Investigator and Team Leader should enter the area.

C. Pictures. All pictures taken must be logged or identified on a sketch. The type of film, exposure number, date/time of photo, the person taking the photo, angle of photo, location, and photo description should be included for each shot taken.

D. Entrance to the Site. People not on the SAIT or not invited into the site for assistance should be prohibited from entering the site.

E. Evidence Removal. Anything taken from the accident site should be logged in on the evidence log and a chain of custody established. Chapter 8 discusses evidence gathering and documentation.

F. Extent of Site and Controls. The extent of the accident site—its physical dimensions—should be established and boundaries identified and marked. The entire site needs to be controlled and evidence protected until released back to the unit by the Chief Investigator.

G. Initial Description of Site. The site description needs to be prepared very carefully to ensure that it is accurate and well defined. Drawings, photographs, and historical records may all prove useful. Chapters 5 and 6 discuss site documentation.

H. Contamination of Site. If the site has been disturbed, witnesses should be used to determine how the site looked at the time of the incident or how it typically looks during a similar operation. The Chief Investigator should always consider the possibility that the site has been disturbed when considering the position of the evidence.

I. Grid Plan for Sketches/Photographs. On large or complex accident sites, the site should be divided into grids so that photographs and sketches can be easily logged and their locations and angles easily understood when looking at them later.

## Chapter 5—Maps, Sketches, Drawings, and Diagrams

### 5.1. INTRODUCTION

A. The purpose of maps, sketches, drawings, and diagrams is to aid the investigation team and management in understanding the conditions existing at the time of the accident, and to reconstruct the circumstances leading up to the accident. Critical information may be lost forever due to inadequate documentation by the investigation team. Such information may be necessary later on in the investigation when analysis of causal factors shows that the position of items held a greater importance than originally thought. Accuracy in measurements, mapping, sketches, and drawings is so important to a successful investigation, that prior to entering a site, a thoughtful and deliberate planning process must occur.

B. The initial development of maps, sketches, drawings, and diagrams should begin as soon as possible following the Agency Administrator's briefing. It is necessary to identify and document any personal items that left the scene of the accident with the victim(s) or response personnel. Do not rely on photographs alone for "site layout" due to problems encountered with photography perspectives (and the occasional bad roll of film).

### 5.2. PRELIMINARY WORK

A. The first step upon arriving at the scene is to, from a distance, determine the extent of the accident site. Note specific geographic and spatial "benchmarks" in order to establish common points of reference. A spatial benchmark may be the big boulder just to the left of the accident site that helps give you an idea of the proportions of the accident.

B. A baseline often needs to be established so that all other measurements can be based from a point along the baseline. Roads, sidewalks, exterior building walls, and ridge or tree lines make good baselines since their positions are fixed and unlikely to change if follow up site inspections are required. Identify all of the common and proper names of the boundary marks so that interview questions can be developed for witnesses who may be unfamiliar with the terms used by long-term residents.

### 5.3. INITIAL SKETCHES

A. The first sketch should be a rough general area sketch encompassing the accident site, debris field, location of readily identifiable structures or land features, general orientation to the north arrow, and approximate measurements by estimation. It should show the orientation of the victim(s), equipment, machinery parts, and debris field.

B. Obvious marks such as skid marks, damaged foliage, damaged surfaces or structures, spills or contaminated areas, and the position of safety equipment should be noted.

C. The intent is not to prepare a detailed drawing of the site, but to:

1. Identify where more precise measurements should be taken
2. Establish the general orientation of investigation photographs
3. Identify hazardous locations
4. Note key areas likely to contain forensic evidence

D. A team member should be assigned as recorder to take notes for the Chief Investigator and/or Technical Advisor.

#### 5.4. EVIDENCE PRESERVATION

The Chief Investigator must determine what evidence is fragile or perishable and may be destroyed or lost due to weather, theft, or moved in order to protect valuable equipment or evidence. After conferring with the personnel responsible for site security, arrange for site, equipment, and material preservation. This may require flagging or barricading the area, increasing security personnel, expanding the site security perimeter, covering the site with plastic, obtaining a secured storage facility, or carefully packaging and removing evidence.

#### 5.5. MEASUREMENTS AND MAPPING

A. Upon establishing a baseline, determine which measurements must be taken to provide definitive information showing the scope and size of the site. An easy method to accomplish this is by establishing a grid pattern for a debris field, and identifying each grid in its x-axis and y-axis. Care must be taken when entering the debris field so as not to disturb evidence during measurements. Photographs taken by the Chief Investigator inside the debris field may be necessary prior to moving objects. Videotapes taken outside the debris field may be useful during the measurement process. A critical measurement is the point of contact and the distance and angle from the point of contact where persons or objects may have been thrown. Specific points must be identified and recorded from the notes. From the first sketch and the measurements taken, a map is sketched on grid paper and the notes from the recorder are added into a “map symbol key” or directly onto the position map.

B. Many organizations have access to global positioning systems (GPS). This tool can be very helpful in mapping accident sites. There are two types of GPS, navigational and engineering.

1. Navigational GPS data and software are usable for quick, accurate mapping for spatial locations and gross distances between areas of interest. DO NOT rely on navigational GPS units to provide accurate, minute detail.

2. Engineering GPS units used with geographic information system (GIS) programs (e.g., ArcView) will provide accurate, minute detail, as well as data documentation and multiple mapping opportunities to more accurately display the accident scene and occurrences.

3. Use of detailed GPS and GIS information will require a technical specialist, who can often be provided by the unit sustaining the accident.

## 5.6. RECORD KEEPING

During the initial measurement and initial photography stage, specific notes should be taken indicating which items may reveal important clues and should be removed immediately for protective storage (eventually all items will be removed from the site). Indicate items that were disturbed or removed during the emergency response efforts, and items that should be at the site but are missing, such as personal protective equipment (PPE) or broken parts. Information critical to the investigation may include: environmental and site conditions that have changed from the time of the accident; events like rainfall or fire that may have destroyed perishable evidence such as tire tracks; and equipment that may have been repaired.

## 5.7. RECONSTRUCTION

Reconstruction of an accident scene or re-creation of an accident is generally not recommended for BLM SAITs due to the complexities and potential theoretical errors, as well as the re-creation of the hazards. If a scene reconstruction or re-creation of an accident is necessary, it is recommended that a professional accident investigator/engineering firm versed in accident reconstruction be brought into the investigation as early as possible before fragile evidence is compromised. The use of placards, traffic cones, ribbon, twine, and spray paint to indicate paths of travel or trajectories is recommended to highlight physical evidence that may not be readily apparent through photographs.

## Chapter 6—Photographs and Videos

### 6.0. GENERAL

A. One of the most useful tools the investigator can bring to the accident scene is a camera. The camera shows the view seen by a witness and can record accident scene details for future reference. There is almost no limit to its usefulness.

B. Depending upon the complexities of the accident, a professional photographer may be needed to document the accident.

C. Digital, 35-mm, and self-processing film cameras can all be used for this application. Remember that self-processing cameras are hard to duplicate. You can have 35-mm film digitized on a CD when the film is processed.

D. While video cameras have their uses, photographs are more useful because they can be enlarged and printed in multiple copies and placed in the Factual Report; videos are difficult to integrate into the final report.

E. If law enforcement personnel investigated the accident, they may have photos of the undisturbed scene that will be of value.

F. Video of the accident scene may be available from the media.

### 6.1. PHOTOGRAPHY

A. Photographs do not have to be taken in the order the investigator intends to look at them. Shoot all the distant and medium shots first and then move on to close-up shots. Use a tripod, flash, or cable release if needed. This method may save time by not having to go back and forth between the two types of photography.

B. Types of photographs that can be used to document the scene.

1. **Perishable Evidence.** These are photographs of things that are likely to change or disappear altogether if not photographed immediately. They can include, but are not limited to, photographs of the accident aftermath or rescue in progress, the victim's position, gauge readings, ground scars, radio settings, fire damage, body fluids or parts, and switch/control positions on equipment.

2. **Aerial Views.** When using an aircraft to shoot aerial photography an aviation plan approved by the Unit Aviation Officer will be needed. If possible, photograph aerial views

early. The appearance of the accident site from the air will change rapidly as investigators move through it. Important locations on the ground can be marked using yellow flagging or other suitable material (e.g., yellow fire shirt). Shoot from multiple angles and distances aboveground.

3. **Overviews of the Scene.** Photograph the accident site equipment wreckage from the eight points of the compass. If the accident scene is spread out over a long distance, try a series of overlapping pictures. The prints can be edge-matched creating a montage (panoramic view). It is important not to adjust the camera between shots and take the shots from about the same distance.

4. **Significant Scene Elements.** Try to establish the terrain gradient through photographs. Photograph ground scars in such a manner that will allow future analysis of size and depth.

5. **Site Inventory.** The camera is a useful tool to inventory the accident site and document personal protective equipment (PPE), other safety equipment, personal effects, and the location and condition of victims. The location of each item may be plotted on a scaled map using a fixed point of reference.

6. **Closeups.** Bracket exposures for closeups by taking two pictures with slightly different focus adjustments (f-stops). Use a tripod or monopod, as appropriate.

7. **Documents.** The camera can be used to photograph documents that otherwise cannot be retained or copied. This includes licenses and logbooks, or even a map or chart on someone's wall.

8. **Witness Views.** It may be important to document the witness' view of the accident. Because the witness may have a very wide-angle view, use a tripod and take overlapping pictures to duplicate the view.

9. **Exemplars.** An exemplar is a model or pattern for an actual object. Sometimes it is difficult to tell from wreckage photographs what the part or component is supposed to look like. In some investigations, it is worth a roll of film to have pictures of an identical undamaged object for comparison.

10. **Reference.** Use something of a known size like a ruler, pen, or your hand in pictures for a reference.

11. **Wildland Fire Photos.** In addition to the types of photographs previously discussed, the following items are specific to fire management accidents:

- a. Final resting position of victims, equipment, trees, and other relevant items
- b. Fireline construction at the accident site
- c. Equipment carried or worn by personnel (personal and official gear)

- d. Fire personal protective clothing and equipment
- e. Safety equipment
- f. Vegetative conditions (before and after)
- g. Surrounding terrain, structures, and orientation photographs
- h. Fire origin and build-up photographs
- i. Shelter deployment (shelter, packaging, and location carried by personnel)
- j. Operating base unit/facilities/equipment

## 6.2. PRESENTATION

Photographs used in the Factual Report should be mounted and captioned. A caption example could be: “View of damaged driver’s door looking north.” Each photo taken should be entered into a log and should include the name of the photographer and date taken (Accident Photographic Documentation Form, Exhibit 6-1).

## Chapter 6—Photographs and Videos

### Exhibit 6-1

#### Accident Photographic Documentation Form

ACCIDENT PHOTOGRAPHIC DOCUMENTATION FORM	
Accident:	Location:
Name of Photographer:	Date and Time Photograph Taken:
Camera Type:	Film:
Description of Photograph:	
<div style="text-align: center; padding: 100px 0;">MOUNT PHOTOGRAPH HERE</div>	

## Chapter 7—Interviews and Witness Statements

### 7.1. GENERAL

A. After the site visitation, it is generally best to continue the investigation by interviewing the “eyewitnesses.” Those involved in the accident are included in the “eyewitness” category. Eyewitnesses may be your best or only source of information for determining the accident sequence of events. It is important for investigators to hold interviews as soon as possible.

B. The mental state of the witnesses in regard to critical incident stress should be taken into account. They may be in shock or traumatized following the accident. They may also be on medication and require the approval of the attending physician before making statements or being interviewed. On the other hand, they are frequently anxious to talk about the accident to anyone who will listen. Providing them with an opportunity to talk about the events surrounding the accident may be helpful to their psychological recovery.

C. It is best to interview the witnesses before any Critical Incident Stress Debriefing (CISD) takes place. However, should the events of an accident cause a severe psychological burden on a witness, it may be necessary to secure the services of a CISD counselor before interviews are conducted. In these cases, try to get a written statement from the witness prior to attending the CISD. Contact the local Employee Assistance Program (EAP) coordinator to arrange for CISD counseling on scene, as necessary.

### 7.2. STATEMENTS

A. To ensure candor, witnesses should be isolated from each other when making their individual statements.

B. Investigators taking statements need to inform witnesses that the Serious Accident Investigation Team (SAIT) will only use their statements for accident prevention purposes. An assurance of confidentiality cannot be given.

C. Exhibit 7-1, Memorandum of Interview, is the form recommended for documenting witness interviews.

### 7.3 INTERVIEWS

A. The Chief Investigator should take the lead in preparing questions for interviews, but may not necessarily always be the interviewer. Interview duties can be assigned to other investigation team members. Interviews need to be taken in quiet, private, comfortable locations that are free of disruption. Provide frequent breaks. Depending on the amount of information needed, an interview may need to be divided up and held in subsequent sessions. It is recommended that the

interview be taped so that a complete record of the interview exists. Whenever an interview is taped, the tape becomes a part of the accident investigation record.

B. Control questions should be developed and used. Control questions provide consistency and ensure that pertinent information is collected in all interviews. Paragraph 7.6 describes some types of control questions.

C. Ensure the name, work address, phone number, date, and name of the interviewee are included in the document.

D. In some instances, witnesses may have to be taken to the accident site after the initial interview for clarification of their statements.

E. If employees are concerned the interview may result in disciplinary action being taken against them, a request for union representation may be made before or during the interview (Weingarten Right) as stated in the Master Agreement. Anytime a representative is requested, the interview will be discontinued until representation is obtained.

#### **7.4. CONDUCT OF INTERVIEW**

A. The objective of the interview is to get the individual to tell you everything he or she knows without being influenced by either the question or by what he or she thinks you want to hear. Usually, it is more productive to move from general to specific questions and from the known to the unknown.

B. The interview begins by asking the individual for his or her name, work address, phone number, position (job title), and location during the accident. The best approach is to ask the person to explain, in his or her own words, what happened. Ask them to start with when they first noticed something. This usually helps put the person at ease and gives you a pretty good idea of what they know.

1. Avoid interviewing more than one witness at a time.
2. Do not prejudge a witness. Keep an open mind and be receptive to all information regardless of its nature. Be serious. Maintain control of the interview. Don't make promises you can't keep.
3. Place the witness at ease. Explain that the purpose of the interview is for accident prevention purposes and that you only seek the facts related to the accident.
4. Inform the witness that a promise of confidentiality cannot be given.
5. Read the witness's written statement (if available) before the interview.

6. Permit witnesses to tell the story in their own words (do not interrupt).
7. Be a good listener. Be unobtrusive in note taking. Maintain self-control during the interview. Don't become emotionally involved in the investigation.
8. Investigation team members should coordinate their questions at the direction of the Chief Investigator.
9. The interviewer should ask follow up interview questions of the witness. Do not assist the witness in answering questions.
10. Avoid revealing to the witness items discovered during the investigation.
11. Avoid contemptuous attitudes. Avoid controversial matters. Respect the emotional state of the witness.

## 7.5. TYPES OF QUESTIONS

A. General Questions. General questions are open-ended, broad questions that are useful in getting the witness to talk. Examples are: "What did you see?" "Tell me everything you can recall." "Tell me more about that."

B. Directed Questions. Directed questions address the subject in a direct manner and get the witness to focus on a specific subject without guiding him or her to what he or she may have seen. For example: "Did you notice any lights on the vehicle?"

C. Specific Questions. Specific questions are needed for specific information. For example: "Did you notice any flashing lights?" "What color was the light?"

D. Summary Questions. Summary questions help the witness organize his or her thoughts and draw attention to possible additional information. Restate what you think the witness told you in your words and ask if that's correct. Frequently, the witness will add more information.

E. Leading Questions. Avoid leading questions. A leading question is one that contains or implies the desired answer. Once you ask a leading question, you have forever frozen an idea about what the witness is supposed to have seen. For example: "Was a red light flashing?"

F. Techniques That Do Not Require Questions. Some interview techniques do not require questions. A nod of your head or an expectant pause may encourage the witness to talk. To keep a witness talking, say something like "uh-huh," "really," or "go ahead." Another non-question technique is to mirror or echo what the witness says. Repeat back to the witness what they have just said without either agreeing or disagreeing with them, such as "You say you saw smoke coming from the vehicle?"

## 7.6. SAMPLE WITNESS QUESTIONS

- A. What is your name, work address, and phone number?
- B. What is your duty station (location) and position (job title)?
- C. Tell us, in your own words, what happened. Try to begin with when you first noticed something?
- D. What is your technical background, skills, or knowledge?
- E. What is your connection with those involved in the accident?
- F. At what time did you see the accident happen?
- G. What attracted your attention to the accident?
- H. What was the position of the vehicle or equipment and individual involved in the accident when first seen?
- I. What was the direction of travel, fall, or final resting place of the vehicle or equipment and individual involved in the accident? (Have the witness draw a diagram, if appropriate.)
- J. What was the weather like at the time of the accident? (Determine if it was clear, sunny, rainy or smoky; what the wind conditions were, such as gusty).
- K. What actions did you take at the accident site?
- L. Were there any other eyewitnesses around? Do the police have other witnesses' names?
- M. Do you wear glasses, other corrective lenses, or a hearing aid? What type? Did you have your glasses or hearing aid on?
- N. Is there any additional information you would like to provide?

## Chapter 7—Interviews and Witness Statements

## Exhibit 7-1

## Memorandum of Interview

	Page _____ of _____	
USDI - BLM	MEMORANDUM OF INTERVIEW	
1. Nature Of Investigation:		
2. Name Of Person Interviewed:		
3. Home Address (St., City, State, Zip Code):		4. Phone (H) (Area Code):
5. Employer (Name And Address):		6. Phone (W) (Area Code):
7. Location Of Interview:		8. Name Of Interviewer:
9. Others Present:	10a. Started Date: Time:	10b. Ended Date: Time:
11. Remarks:		
12. Interviewer's Signature:		13. Witness' Signature:

## Chapter 8—Evidence Gathering and Documentation

### 8.1. GENERAL

A. Evidence is gathered for two primary reasons: 1) to help you determine what happened and, 2) to provide documentation to support your findings and causes. Evidence takes many forms (e.g., photos, witness statements, site diagrams, technical references, equipment parts, personnel records, and tear-down analysis).

B. The collection of this information begins almost immediately after you arrive at the accident site. During the Agency Administrator's Briefing, you should determine if they received a fax from the Bureau Safety Manager or National Interagency Fire Center (NIFC) requesting them to collect evidence. If they did, determine how much of the requested evidence has been collected and take possession of it. For all pertinent documentation that has not been collected, request that it be secured until your team can retrieve it.

C. Once collected, all evidence must be logged in and tracked through detailed Evidence and Chain-of-Custody Logs (Exhibits 8-1 and 8-2). If one of the Serious Accident Investigation Team (SAIT) members takes a piece of evidence away from the work area, its removal should be noted on the chain-of-custody log.

### 8.2. TYPES OF EVIDENCE

A. Evidence is categorized into three types: human, material, and environmental. As the investigation starts, begin to list the items you want the team to acquire. One good way to do this is to take three sheets of flipchart paper and place them on the wall in the team room. Place one of the three evidence headings on each sheet. As you identify items you want to acquire or check on, place that item on the appropriate sheet. As items are acquired or discarded as not relevant, place a check mark in front of that item or draw a line through it.

B. Sections 8.3, 8.4, and 8.5 give examples of types of evidence that will help provide a thorough understanding of the systems in place prior to the accident, and identify the inherent strengths and weaknesses in management controls. In requesting the information, care must be taken so as to not destroy, alter, or lose documentation, and to preserve documentation for any subsequent legal proceeding.

### 8.3. TYPES OF HUMAN FACTORS EVIDENCE

A. Qualification and Training. Determine the qualifications and training of individuals directly involved in the accident (e.g., operator, passenger, supervisor). Identify any contributing factors, such as the lack of operator certifications or insufficient training.

B. Duties. Identify the duties (e.g., primary and additional duties,) of the individuals directly involved in the accident. Note any accident contributing factors (e.g., work/rest schedules, employee fatigue).

C. Management. Management policies and procedures, manufacturers' operator manuals, and standard operating procedures are written with the intention of placing controls on human behavior. If these documents are inadequate for the job to be performed by a given employee, the employee may perform the job task unsafely. Determine organization, supervision, and external control of the individuals directly involved in the accident. Identify any accident contributing factors (e.g., supervisory or organizational lack of safety emphasis or support).

D. Compliance. Note deviations from policies, procedures, practices, and contract specifications directly involved in the accident (e.g., risk assessments/job hazard analysis (JHA), safety equipment, and other items pertinent to the accident).

E. Documents. Identify whether directives, operating guides, and contracts were current, readily available, and properly used by individuals associated with the accident. Review records specific to the accident (e.g., inspections, dispatch and equipment logs, time and attendance records).

F. Communications. Establish what the pre-accident, accident, and post-accident communications were. Identify any communication factors that contributed to the accident (e.g., coverage, faulty equipment).

G. Services. Determine whether contractual services, such as road guards, traffic signs, or dispatch procedures contributed to the accident.

H. Fatigue. At a minimum, a 72-hour pre-accident, work/rest analysis should be conducted. This analysis should include an examination of time and attendance records, as well as input from respective supervisors on tasks completed and actual time worked (may not necessarily be reflected on time and attendance records), off-duty activities, and sleep duration/cycles.

I. Risk Management. Determine whether a risk assessment, JHA, or other workplace analysis was developed and establish the role they played in the work project or activity. Determine if a safety briefing was conducted prior to beginning work. Exhibit 8-3 is a Human Factors Accident and Incident Analysis checklist.

J. The following are examples of specific human factors evidence.

1. Official personnel records/official medical records
2. Private medical records
3. Position descriptions
4. Resumes
5. Driver's license checks

6. Training records
7. Management policy statements
8. Accident records
9. OSHA log
10. Time cards, work shift schedules
11. Safety briefings
12. Employee reports of unsafe/unhealthful working conditions
13. Safety communications
14. Executive and safety committee minutes
15. Employee suggestions
16. Inspection reports
17. Risk assessments
18. Job hazard analyses
19. System safety analyses
20. Facility inspections
21. Standard operating procedures
22. Job or contract specifications
23. Purchasing records (contracts, change orders, invoices)
24. Regulatory standards
25. Professional, trade, and union standards
26. Emergency medical system records
27. Coroner and medical examiner's reports
28. Public affairs news releases
29. News media reports
30. Radio communication reports/transcripts
31. Law enforcement reports

#### 8.4. TYPES OF MATERIAL EVIDENCE

A. Equipment. Equipment evidence includes the tools, machinery, and vehicles that employees use to perform job tasks. A number of accidents are the result of improper use of equipment, not using equipment as designed by the manufacturer, confusing designs or layouts, improper maintenance, manufacturing design flaws, defeated guards, or abuse of equipment.

B. Systems. Determine what equipment was involved in the accident and its suitability to perform the work project or activity. Include any pertinent maintenance records, preventive maintenance, inspections, and approvals of maintenance personnel.

C. Survivability. Evaluate the ability and suitability of the vehicle/system/equipment to perform the work project or activity and the occupant compartment's structural integrity. Examples include:

1. Impact conditions and crash (dynamic) forces
2. Restraint and roll-over protection systems (used/non-used, equipped/non-equipped, seatbelts used/not used)
3. Personal protective clothing and equipment, and safety equipment
4. Backup and emergency systems
5. Safety design

D. Position of all dials and gages. Note position of operating controls, such as the gear shifter, parking brake, and lift/tilt controls.

E. Laboratory/Tear down Analysis. Special studies or tests may be needed to determine the cause of the failure. These tests are usually conducted by another agency or private laboratory to ensure impartiality. Review the results of the equipment component analysis, if conducted.

F. Here are some examples of specific material evidence:

1. Equipment, parts, and structures
2. Manufacturer's operating instructions
3. Equipment inspections
4. Condition reports and operation logs
5. Repair reports (documenting previous equipment failures)
6. Building blueprints
7. Facility design documents
8. Facility layout diagrams
9. Engineering orders
10. Construction project files
11. Equipment installation manuals
12. Parts lists
13. Maintenance schedules
14. Maintenance procedures
15. Building contract provisions
16. Fabrication and design records
17. Manufacturer's warranties
18. Material consensus standards (ANSI, ATSM)
19. Material safety data sheets

## 8.5. TYPES OF ENVIRONMENTAL EVIDENCE

A. Weather. Verify the weather conditions before, during, and after the accident. Identify any contributing factors, such as precipitation, temperature, lighting, and visibility.

B. Physical Environment. Identify any contributing factors, such as terrain features, working space, walking surfaces, altitude, vegetation, slope, accessibility, dust, and smoke.

C. Types of environmental evidence include:

1. Weather reports
2. Meteorological analysis
3. Weather damage analysis (lightning strike points, wind damage)
4. Terrain maps
5. Altitude
6. Environmental hazards (smoke, fire, asbestos, radiation)
7. River volume and speed
8. Surface slip resistance
9. Noise levels

## 8.6. EVIDENCE COLLECTION

A. It is your responsibility as Chief Investigator to identify what evidence is required and see that it is collected and cataloged.

B. All members of the team may collect and catalog evidence.

C. Physical evidence, such as equipment and parts, needs to be "bagged and tagged" at the time of collection. Large items such as vehicles or construction items should be secured.

D. Exhibits 8-1 and 8-2 are examples of an evidence collection log and a chain-of-custody log. The chain-of-custody log helps keep track of pieces of evidence taken by team members for further testing or study.

E. The original or copies of all important paper evidence should be placed in the permanent file.

## Chapter 8—Evidence Gathering and Documentation

### Exhibit 8-1

#### Evidence Log

##### EVIDENCE LOG (for Non-Photographic Evidence)

Incident Identification:

Evidence Custodian:

<b>Evidence ID Number</b>	<b>Date</b>	<b>Collected By</b>	<b>Description of Evidence</b>	<b>Remarks (location found, etc.)</b>	<b>Person Logging Evidence In (Signature Required)</b>	<b>Date Signed In</b>

## Chapter 8—Evidence Gathering and Documentation

### Exhibit 8-2

#### Chain-of-Custody Log

##### CHAIN-OF-CUSTODY LOG (for Non-Photographic Evidence)

Incident Identification:

Evidence Custodian:

Evidence ID Number	Description of Item	Name of Person Logging Item Out	Name and Signature of Person Receiving Item	Date Item Received	Name and Signature of Person Receiving Item Back In	Date Item Received

## Chapter 8—Evidence Gathering and Documentation

### EXHIBIT 8-3

#### Human Factors Accident and Incident Analysis

##### 1. Sensory and Perceptual Factors

Misjudgment of distance, clearance, speed, etc.

False perception caused by visual illusion

*Conditions that impair visual performance:*

Featureless terrain (such as a desert, dry lake, water, snow)

Darkness and poor visibility

Smoke and changing smoke patterns

Mountainous terrain or sloping runway

Anomalous light effects that cause flicker vertigo

Low contrast of objects to background or poor illumination

View into bright sunlight or moonlight

Shadows

Whiteout snow conditions

Spatial disorientation and vertigo

*Conditions that affect sense of body position:*

Loss of visual cues

Adverse medical condition or physiological condition (alcohol and drug effects, hangover, dehydration, fatigue, etc.)

Moving head up and down, looking in and out to change radios, answering or using cell phones

*Loss of situational awareness types:*

Geographic disorientation (such as deviation from route, loss of position awareness)

General loss of situational awareness (such as failure to perceive hazardous condition)

Erroneous situational assessment (misinterpretation of situation or condition)

Failure to predict or anticipate changing conditions

False hypothesis confirmation bias (persistent false perception or misconception of situation)

*Attention failure types (such as failure to monitor or respond when correct information is available)*

Failure to visually scan outside the vehicle or equipment for hazards

Omission of checklist items

Failure to respond to communication or warning

*Control-action error:*

Failure to set, move, or reset control switch (lapse)  
Unintentional activation of control switch (slip)  
Control-substitution error (slip)  
Control-reversal error (slip)  
Control-adjustment or precision error (slip)

*Conditions that affect attention and situational awareness:*

Inattention (focus on information unrelated to tasks)  
Channelization, fixation (psychological narrowing of perception)  
Distraction (preoccupation with internal mental event or with external event)  
Task overload due to systems (such as communications)  
Task overload due to equipment systems assignment factors  
Cognitive workload (problem-solving concentration or information overload)  
Habit influence or interference  
Excessive crew stress or fatigue  
Excessive workload or tasking  
Inadequate briefing or preparation  
Inadequate training or experience for assignment  
Negative learning transfer (such as during transition to new assignment)  
Adverse meteorological conditions  
Tactical-situation overload or display-information overload  
Inadequate crew motivation or inadequate vigilance  
Inadequate equipment design

**2. Medical and Physiological Factors**

Carbon monoxide poisoning  
Self-medication (without medical advice or against medical advice)  
Motion sickness  
Incompatible physical capabilities  
Overexertion while off duty  
Influence of drugs or alcohol  
Cold or flu (or other known illness)  
Excessive personal stress or fatigue  
Inadequate nutrition (such as omitted meals)  
Hypoxia (lack of oxygen)  
Heat  
Cold  
Stress induced by heightened state of alertness  
Effects of smoke  
Dehydration  
Other medical or physiological conditions

*Conditions that may cause adverse medical or physiological state:*

Assignment tasking or job fatigue (such as on duty more than 14 hours, late-night or early morning operations)

Cumulative fatigue (such as excessive physical or mental workload, circadian disruption, or sleep loss)

Cumulative effects of personal or occupational stress (beyond stress-coping limit)

Emergency condition or workload transition (from normal operation to emergency operation)

Medical or physiological preconditions (health and fitness, hangover, dehydration, etc.)

### **3. Knowledge and Skill Factors**

*Inadequate knowledge of systems and procedures:*

Use of improper procedure

Ill-structured decisions

Failure in problem solving

Inadequate equipment control or inadequate accuracy and precision of equipment maneuvering (skill-based error)

Breakdown in visual scan

Failure to see and avoid

Over or under reacting

Over or under controlling

Inadequate experience for complexity of assignment

*Misuse of procedures or incorrect performance tasks (rule-based error):*

Failure to perform required procedure

Use of wrong procedure(s) or rule(s)

Failure to conduct step(s) in prescribed sequence

*Conditions that lead to inadequate operational performance:*

Lack or variation of standards

Loss of situational awareness in varying environment

Demonstration of performance below required proficiency standards or current certification standards

Demonstration of inadequate performance or documented deficiencies

Inadequate essential training for specific task(s)

Inadequate recent experience or inadequate overall experience

Lack of sensory input

Limited reaction time

### **4. Assignment Factors**

Failure of dispatch to provide correct critical information (such as frequencies, location, other equipment or resources)

Poor communication with other assets (such as ground or aircraft)

- Inadequate or faulty supervision from ground or tactical aircraft
- Lack or variation of standards
- Non-participant or non-communicative equipment or resources at the scene
- Loss of situational awareness in varying environment
- Changing plans tactics (change of teams on incidents)
- Unanticipated change of radio frequencies
- Intentional deviation from procedures
- Unintentional deviation from procedures
- Demonstration of performance below required proficiency standards or currency standards
- Demonstration of inadequate performance or documented deficiencies
- Inadequate essential training for specific task(s)
- Inadequate recent experience or inadequate experience for assignment
- Transition (learning new equipment or operational systems)
- Inadequate knowledge of tactical situation
- Lack of sensory input
- Limited reaction time
- Smoke
- Wind shifts
- Changes in fire behavior
- Low visibility
- Unexpected or non-participant equipment, resources, or aircraft
- Assignment intensity
- Assignment creep
- Assignment urgency
- Failure to recognize deteriorating conditions
- Time compression
- Excessive communication demands
- Past assignment success based on high-risk behavior

## **5. Personality and Safety Attitude Factors**

- Demonstration of overconfidence
- Demonstration of excessive motivation to achieve assignment
- Reckless operation
- Demonstration of anger or frustration on the job
- Demonstration of stress-coping failure (such as anger)
- Overly assertive or non-assertive
- Inadequate confidence to perform tasks or activities
- Acquiescence to social pressure (from organization or peers) to operate in hazardous situation or condition
- Failure to report or act upon incidents of misconduct
- Toleration of unsafe acts and behaviors
- Poor equipment or assignment preparation

## 6. Judgment and Risk Decision Factors

Acceptance of a high-risk situation or assignment  
Misjudgment of assignment risks (complacency)  
Failure to monitor assignment progress or conditions (complacency)  
Use of incorrect task priorities  
Intentional deviation from safe procedure (imprudence)  
Intentional violation of standard operating procedure or regulation  
Violation of orders, regulations, or standard operating procedures (SOPs)  
Crew rest requirements  
Inadequate training  
Violated agency policy or contract  
Failed to comply with agency manuals  
Supervisor knowingly accepted unqualified crew  
Failed to obtain valid weather brief  
Accepted unnecessary hazard  
Not current or qualified for assignment  
Intentional disregard of warnings  
Noncompliance with personal limits  
Noncompliance with published equipment limits  
Noncompliance with prescribed assignment parameters

### *Conditions leading to poor safety attitude and risky judgment:*

History of taking high risks (personality-driven)  
Pattern of overconfidence  
Personal denial of wrongdoing  
Documented history of marginal performance or failure  
Excessive motivation (did not know limits)  
Reputation as a reckless individual  
Failure to cope with life stress (anger or frustration)  
Overly assertive or non-assertive (interpersonal style)  
Influenced by inadequate organizational climate or safety culture (such as lack of adequate supervision)

## 7. Communication and Crew Coordination Factors

Inadequate assignment plan or brief  
Inadequate or wrong assignment information conveyed to crew (dispatch errors or supervisor errors)  
Failure to communicate plan or intentions  
Failure to use standard or accepted terminology  
Failure to work as a team  
Inability or failure to contact and coordinate with ground or aviation personnel

Inadequate understanding of communication or failure to acknowledge communication  
Interpersonal conflict or crew argument during assignment

*Conditions leading to inadequate communication or coordination:*

Inadequate training in communication or crew coordination  
Inadequate standard operating procedures for use of crew resources  
Inadequate support from organization for crew coordination doctrine  
Failure of organizational safety culture to support crew resource management

## **8. System Design and Operation Factors**

Use of wrong switch or lever or control  
Misinterpretation of instrument indication  
Inability to reach or see control  
Inability to see or interpret instrument or indicator  
Failure to respond to warning  
Selection or use of incorrect system operating mode (mode confusion)  
Over reliance on automated system (automation complacency)

*Conditions that contribute to design-induced crew errors:*

Inadequate primary equipment control or display arrangement  
Inadequate primary display data or data format  
Inadequate hazard advisory or warning display  
Inadequate system instructions or documentation  
Inadequate system support or facilities  
Inappropriate type or level of automation, or excessive mode complexity

## **9. Supervisory and Organizational Factors**

Not adhering to rules and regulations  
Inappropriate scheduling or crew assignment  
Failure to monitor crew rest or duty requirements  
Failure to establish adequate standards  
Failure to provide adequate briefing for assignment  
Failure to provide proper training  
Lack of professional guidance  
Failure to support or negative support of crews  
Failure to monitor compliance with standards  
Failure to monitor crew training or qualifications  
Failure to identify or remove a known high-risk employee  
Failure to correct inappropriate behavior  
Failure to correct a safety hazard  
Failure to establish or monitor quality standards  
Failure of standards, either poorly written, highly interpretable, or conflicting

Risk outweighs benefit  
Poor crew pairing  
Excessive assignment tasking or workload  
Inadequate assignment briefing or supervision  
Intentional violation of a standard or regulation

*Failure to perceive or to assess correctly assignment risks, with respect to:*

Hazards go unseen or unrecognized  
Environmental hazards or operating conditions  
Assignment tasking and crew skill level  
Equipment limitations

*Conditions leading to supervisory failures:*

Excessive operations or organizational workload (imposed by the organization or imposed by organizational chain)  
Inadequate organizational safety culture  
Supervisor over-tasked  
Supervisor untrained  
Inattention to safety management (inadequate safety supervision)  
Inadequate work standards or low performance expectations  
Inadequate or bad example set by supervisors  
Inadequate safety commitment or emphasis by supervisors  
Organization lacked an adequate system for monitoring and correcting hazardous conditions  
Supervisors did not promote and reward safe behavior or quickly correct unsafe behaviors  
Organization did not have adequate policies and procedures to ensure high-quality work performance  
Organization had inadequate job qualification standards or training program  
Organization had inadequate internal communication  
Organization had no system or an inadequate system for management of high-risk employees  
Organization had inadequate process or procedures for operational risk management  
Organization did not provide adequate human factors training  
Organization did not ensure sufficient involvement of medical and occupational health specialists  
Organization did not establish or enforce acceptable medical or health standards

## **10. Maintenance Factors**

*Procedures:*

Unwritten  
Unclear, not defined, or vague  
Not followed

*Records:*

Discrepancies entered, but not deferred or cleared  
Entries not recorded or not recorded in correct book(s)  
Improper entries or unauthorized signature or number  
Falsification of entries

*Publications, manuals, guides:*

Not current  
Were not used for the procedure  
Incorrect manual or guide used for procedure  
Not available

*Training:*

Not trained on procedure  
Training not documented  
Falsified  
Not current

*Personnel:*

Not properly licensed  
Insufficient (staffing)  
Improper or insufficient oversight  
Not properly rested

*Management:*

Non-existent  
Ineffective  
Understaffed  
Ineffective organization chart  
Insufficiently trained

*Quality Assurance:*

Non-existent  
Insufficiently trained  
Ineffective  
Not used when available

*Inspection Guides:*

Not available  
Procedures not followed  
Insufficient  
Not current  
Not approved  
Not signed off

Falsified

Unapproved signature or number

*Tools or Equipment:*

Improper use or procedure

Not calibrated

Not used properly

Not trained for the special equipment or tool

Not used

No tool control program

## Chapter 9—Wildland and Prescribed Fire Accident Investigation

### 9.1. GENERAL

A. Wildland firefighters work under extreme conditions and are exposed to many hazards and associated risks. The wildland fire organization operates under a concept of total interagency mobilization that moves firefighters across the country as easily as rural departments move across county lines. Because of this mobilization, it is imperative that information about specific entrapments and the lessons learned from these situations be disseminated to all wildland firefighters in a thorough and timely manner. For this reason, most wildland fire agencies that experience a burnover or fatality conduct a fire entrapment investigation to review the circumstances of the incident. Such a review can provide important insights and recommendations to improve wildland fire safety.

B. Fire entrapments and/or deployments that do not result in a fatality or the hospitalization of three or more individuals are not considered serious accidents; however, they will be investigated at a lower level (usually State level).

C. The investigation process, Factual Reports, and Management Evaluation Reports are the same as for any other serious accident investigation. This chapter addresses the terms and procedures that are unique to wildland fire accidents.

### 9.2. WILDLAND FIRE DEPLOYMENTS, ENTRAPMENTS, AND FATALITIES PROTOCOL

The following information is specific to wildland fire deployments, entrapments, and fatalities in conjunction with the previously stated general information. In a wildland fire environment:

A. A deployment refers to the use of a fire shelter for protection against fire.

B. “An entrapment is a situation where personnel are unexpectedly caught in a fire behavior-related, life-threatening position where planned escape routes or safety zones are absent, inadequate, or have been compromised. An entrapment may or may not include deployment of a fire shelter for its intended purpose. This situation may or may not result in injury. They include near misses” (Reference: Investigating Wildland Fire Entrapments, MTDC 9551-2845).

C. All motorized fire equipment vehicles involved in a burnover (e.g., a fire engine) will be considered as an entrapment when personnel are involved; otherwise, it will be considered damaged or destroyed property and investigated as determined by local or State management.

D. A fatality is any death that occurs in the line of fire duty. This includes travel to and from assigned incidents.

### 9.3. INITIAL RESPONSE

A. The unit or Incident Management Team that has experienced a fire entrapment, deployment, or fatality needs to take some immediate actions.

B. As soon as an entrapment, deployment, or fatality is verified, the local unit agency dispatcher should initiate the contacts necessary to meet legal and logistical requirements.

1. Agency law enforcement personnel should be requested to assist in securing the site.
2. The National Interagency Coordination Center (NICC) should be notified.
3. Higher level headquarters (Director/National/State Safety Managers) should be notified.
4. Contact any other agencies and individuals as required by local incident response plans.

C. The unit or Incident Management Team shall report preliminary information about a fire entrapment, deployment, or fatality associated with wildland fire operations on the Wildland Fire Entrapment/Fatality Initial Report Form NFES 0869. This form needs to be forwarded to the agency administrator and NICC within 24 hours of the accident or incident.

D. The unit or Incident Management Team should use the On-Site Wildland Fire Injury and Fatality Protocol Checklist to ensure all required actions have been taken.

### 9.4. TEAM COMPOSITION

A. As soon as a fire entrapment, deployment, or fatality occur the agency having jurisdiction moves to establish an investigation team for the specific incident.

B. Any fire-related serious accident investigation requires interagency Serious Accident Investigation Team (SAIT) participation per the Memorandum of Understanding (MOU) between the United States Department of the Interior and the United States Department of Agriculture (Exhibit 9-1), meaning there will be at least one interagency representative from the Department of Agriculture on Department of Interior incidents and vice-versa.

C. Co-lead Investigations. Co-lead investigations will be conducted in accordance with the MOU between the United States Department of the Interior and the United States Department of Agriculture (Exhibit 9-1).

D. When a serious fire-related accident occurs affecting only personnel of one agency, the Chief Investigator may be assigned by the responsible agency. Chief Investigators must be outside the office that sustained the accident.

E. Other individuals normally assigned to an entrapment, deployment, or fatality investigation are:

1. Fire operations specialist (normally at the Operations Section Chief level)
2. Fire safety officer
3. Fire behavior analyst (with experience in the incident fuel type)
4. Fire weather meteorologist from the National Oceanic and Atmospheric Administration (NOAA) Fire Weather Service
5. Fire equipment specialist from the Missoula Technology and Development Center
6. Technical (professional) photographer
7. Incident information officer

F. Investigators visiting the fireline should be escorted and trained in the use of and have the following personal protective equipment (PPE):

1. 8-inch high, lace-type work boots with non-slip (Vibram type), melt-resistant soles and heels
2. Aramid (Nomex) shirts and trousers
3. hard hat with chinstrap
4. leather gloves
5. fire shelter
6. hand tool
7. water canteen
8. personal first aid kit

## 9.5. INVESTIGATION ELEMENTS

The investigation team will use procedures that apply to all serious accident investigations. However, they will pay particular attention to the following elements as they relate to this fire event.

- A. Fire behavior
- B. Environmental factors
- C. Incident management
- D. Control mechanisms
- E. Involved personnel profiles
- F. Equipment

## 9.6. ON-SCENE ACTIVITIES

A. When a fatality occurs on an entrapment, the victim should not be moved without the specific permission of the sheriff or coroner/medical examiner. Injured persons should receive emergency medical treatment and transportation to a medical facility as soon as possible.

B. Tools, vehicles, personal equipment, and PPE (to include fire shelters and other associated items) should be left where they are until cleared for removal by the Chief Investigator. Law enforcement personnel should be used to secure the site from outside disturbance and from unauthorized visits by the media. Information gathered at the site of an entrapment is often critical in reconstructing the events that occurred and for identifying lessons learned so that recurrence can be avoided.

C. Once the investigation team arrives on the site (usually within 12 hours), the following tasks are undertaken:

1. Photograph the entire scene before any items are removed. Specific areas requiring photographic documentation include overviews of the entrapment scene from the air. Aerial photographs show critical factors such as fuel types and burn patterns that may have contributed to the entrapment. When photographing from helicopters, be cognizant of rotor downwash that could disturb the site.
2. Take general area photographs of the scene from the ground and large-format close-ups of damage to PPE and other fire fighting equipment. (Note: Laying a new yellow Nomex shirt and green Nomex trousers where an individual was burned over helps a photograph better show conditions as they were found.)
3. Make a detailed site diagram showing the specific locations of individuals, equipment, roads, structures, and other important features. Small entrapment scenes can be mapped using a compass and pacing method from known landmarks or control points. On larger scale entrapments, which occur over areas covering more than a 3/8-mile area, global positioning system (GPS) may be a useful tool. A detailed site diagram is an essential part of the final investigation report.
4. Observe the position of all items to help reconstruct the events that took place. After the visual review is complete, individual items of personal protective clothing and other equipment should be collected, tagged to indicate which person used them, and removed to the investigation team headquarters. These items should be protected and secured in the same manner as evidence.
5. Natural terrain features at entrapment scenes can provide valuable information. Slope, aspect, drainage, fuel type, fuel loading, heat-set on grass and needles, and evidence of winds can all aid the investigator in determining the events that led to the entrapment.

## 9.7. ANALYSIS OF PROTECTIVE EQUIPMENT

A. PPE should be inspected for compliance with BLM policies on mandatory and optional equipment for wildfires. It should also be inspected to determine the manufacturer and if it was constructed in accordance with accepted standards. The National Fire Protection Association

(NFPA) 1977 compliance label is a good indicator of compliance. Note: BLM Standards may or may not be NFPA compliant.

B. Clothing subjected to radiant heat or direct flame contact should be compared with industry examples to show temperature ranges in the entrapment. Comparing after-burn conditions of equipment with the design standard for the individual items can often help determine the survivability of an entrapment. The Missoula Technology and Development Center should analyze all PPE.

#### 9.8. FIREFIGHTER AUTOPSY PROTOCOL

A. This protocol was developed by the U.S. Fire Administration for the purpose of providing medical examiners and pathologists with uniform recommended procedures for investigating the causes and contributing factors related to firefighter deaths.

B. Family members are entitled to benefits under the U.S. Department of Justice, Public Safety Officer Benefits Program, when "public safety officers found to have died as the direct and proximate result of a personal injury sustained in the line of duty." (28 CFR 32.1)

C. To acquire these benefits, claimants are required to demonstrate that the injury resulting in death was the direct result of activities performed in the line of duty (as opposed to personal health, such as coronary artery disease).

D. While every attempt will be made to provide this protocol to the medical examiner at the same time the SAIT is dispatched, you should follow up with the medical examiner to ensure it was received and is being utilized.

## Chapter 9—Wildland and Prescribed Fire Accident Investigation

### Exhibit 9-1

#### Memorandum of Understanding

##### MEMORANDUM OF UNDERSTANDING

Between the

United States Department of the Interior

and the

United States Department of Agriculture

I. Purpose. This Memorandum of Understanding establishes the basis for interagency investigation of serious fire-related accidents.

II. Introduction. If the causal factors of a serious fire-related accident are identified, effective corrective actions to prevent a recurrence can be taken. Interagency investigations add perspective and enhance the mix of skills and knowledge on the investigation team. Interagency investigations are especially important where there are common management and corrective action issues.

III. Policy. Interagency investigations will be conducted whenever a serious fire-related accident occurs on a USDA Forest Service managed fire, Department of the Interior managed fire, or a jointly managed fire. The National Transportation Safety Board, the USDA Forest Service, and the Department of the Interior in accordance with established laws and agreements will investigate aircraft accidents occurring during wildland fire operations.

IV. Definitions.

a. Serious Fire-Related Accidents. Accidents occurring to personnel participating in wildland fire suppression or prescribed burning operations, or to personnel working in direct support of those activities, which result in one or more fatalities or the hospitalization of three or more personnel.

b. Co-Lead Investigations. Team Leaders from both Departments and team members from both Departments.

c. Agency-Lead Investigations. Single team leader and team members from both Departments.

V. Procedures. Interagency investigation teams will include personnel from both the Department of the Interior and the Department of Agriculture. Representatives of the Department of Labor, Occupational Safety and Health Administration, will be invited to

participate in these investigations, or will be given full support to conduct their own investigation.

a. Co-Lead Investigations will be conducted whenever:

1. A serious fire-related accident occurs on a USDA Forest Service/Department of the Interior jointly managed fire, or,
2. A serious fire-related accident involving USDA Forest Service personnel occurs on a Department of the Interior managed fire, or,
3. A serious fire-related accident involving Department of the Interior personnel occurs on a USDA Forest Service managed fire.

b. Agency-Lead Investigations will be conducted whenever only one agency is responsible for managing a fire, and a serious fire-related accident occurs affecting only personnel of that same agency. The agency responsible for managing the fire will lead the investigation.

VI. Timeframes. The report should be completed and a copy submitted to the appropriate Departmental Designated Safety and Health Official(s) within 45-calendar days of the accident.

VII. Training and Qualifications. Team Leaders, Investigators, and Specialists will meet minimum training and qualification standards as jointly established by the Department of Agriculture, the Department of the Interior, and the National Wildfire Coordinating Group.

Assistant Secretary Operations  
Director of U.S. Department of Agriculture

Director of Operations  
U.S. Department of the Interior

10/26/95

## Chapter 10—Deliberations, Findings, Causes and Recommendations

### 10.1. GENERAL

At some point during the investigation, you will decide that all the relevant data has been collected. The next task is to analyze the data and to structure the results into a format that clearly shows the relationship between the causal factors (human errors/material failures/environmental factors) and the system inadequacies or root causes that permitted them to occur. The process used to conduct this analysis is termed "deliberations" and will be conducted with all team members present.

### 10.2. DELIBERATIONS

A. The Team Leader is responsible for the supervision of deliberations and, at a minimum, should discuss the following areas with the team prior to beginning:

1. Deliberation process that will be used.
2. The products that the team will need to produce as a result of the deliberations.
  - a. Accident chronology
  - b. Findings that sustained the accident sequence
  - c. Causes of the accident
  - d. Findings that did not contribute to the accident but could lead to other accidents if uncorrected
  - e. Recommendations to correct the causal findings identified

B. All appointed team members will attend the deliberations. (Note: Advisors are not considered voting members, but may be included in the deliberations.)

### 10.3. DELIBERATION PROCESS

A. As Chief Investigator, you will help lead the deliberations in conjunction with the Team Leader. There are several different ways to effectively conduct deliberations. The following method is suggested for use if you don't have another preference. It ensures that all deficiencies are addressed, establishes the timeline, produces a written record of the deliberations, and provides a framework from which to write the analysis portion of the Report, which is the documentation of the team's deliberations.

B. Develop an accident chronology. This chronology will include events leading up to the accident, the accident sequence, and actions taken after the accident. This chronology will

probably have already been outlined during the investigation. Go through it one more time to make sure that the timeline is complete and there are no unexplained gaps. Consider the following in your chronology:

1. Pre-Accident. Establish the sequence of events leading to the accident to answer the questions: who, what, when, where, why, and finally how the operation was to be conducted. Identify any pre-accident contributing factors. These may be things like an inappropriate sense of urgency, known weather issues that were not taken into consideration, equipment conditions or terrain, or management pressure to complete a job or task.

2. Accident. Determine the accident sequence of events. Identify any accident contributing factors (e.g., use of seatbelts, worn tires, lack of information, mistakes). If a fire was involved, establish when, where, and how the fire started if possible. Determine flame propagation and if attempts were made to extinguish the fire. (Note: Fire in this subparagraph does not mean wildland fire.)

3. Post-Accident. Identify the post accident sequence of events (e.g., search and rescue efforts, medical efforts), how the accident was first reported, and the locations of personnel/equipment at the conclusion of the accident. Describe rescue, first aid, and evacuation efforts. Identify all medical facilities that provided treatment. Note any disturbance to the accident site, security/preservation measures taken, and any post-accident contributing factors, (e.g., rescue/medical response).

4. Injuries. Record all injuries. Document the condition of the patients, and summarize autopsy reports, if applicable.

5. Damage. Estimate the extent and cost of the equipment or property damage and define as minor, major, destroyed, or repairable.

C. Identify the findings. You will have looked at all the Human, Material, and Environmental evidence. You probably have flipchart paper on the wall or a whiteboard with these three headings and all findings listed under them. At this point the team will identify findings. A finding is a single event or condition. Each finding is an essential step in the accident sequence, but each finding is not necessarily causal. These findings have been placed on these sheets throughout the investigation as they were discovered.

D. Identify the causes of the accident. A cause is a deficiency that the correction, elimination, or avoidance of would likely have prevented or mitigated the accident or significant injury.

E. After you determine the causes of the accident, go to the human, material and environment lists on the flip charts described earlier. Place all the findings in sequential order on a whiteboard or pieces of flip chart paper. They are generally laid out in the following categories:

- Pre-Accident: historical (e.g., improper training); events preceding the accident (e.g., the deceased had only three hours of sleep the previous night)
- Accident: during the accident sequence (e.g., the right front tire blew out)
- Post-Accident: post-accident actions (e.g., because of weather it took 25 minutes for emergency assistance to arrive at the scene of the accident)

1. As you place them in sequential order, scratch them off the human, material, and environmental sheets.

2. Some of the findings will not fit in the sequential list. If you are not sure about a finding, ask yourself this question, "Would the accident still have occurred if this finding was not present?" If the answer is no, leave this item out of the sequential order you are preparing. (Note: It is of utmost importance to impress on each team member that every finding, regardless of perceived individual importance, be brought to the attention of the entire board during deliberations.)

F. Listed below are examples of findings that are frequently found during investigations.

#### 1. History

- Medical problems
- Personnel records (discrepancies)
- Driving records (discrepancies with DA Form 348, training records, and SF-46)
- The unit driver's training program was inadequate.
- The activity wasn't approved.
- There wasn't adequate preparation.
- The employee wasn't qualified.
- The employee's work/rest schedule did not comply with standards.
- The equipment condition/maintenance trends indicated problems.
- The written guidance was inadequate.
- The operator had a number of previous accidents.
- Risk management procedures weren't applied or weren't adequate (e.g., hazards identified and controls in place followed).

#### 2. Preparations

- Vehicle checks were not completed properly.
- Vehicle was not dispatched properly.
- Written policies were not followed.
- Other discrepancies

### 3. Activity

- Work not conducted as planned.
- Material/maintenance problems
- Logistical support problems
- Weather conditions
- Didn't adhere to written requirements.
- Communication and coordination inadequate

### 4. Post-accident

- Egress, seat belt, or rollover protection system problems
- Compromise, penetration, or reduction of occupiable space
- Rescue (timeliness, problems with rescue)
- Pre-accident plan (written instructions on what to do if an accident occurs)
- Security of accident site

G. After completing this process, you will have a sequential listing of all the findings that contributed to the accident.

H. Now go back to your original human, material, and environmental lists. The remaining abnormalities will be classified as "Other" findings because they were present, but did not contribute to, the accident (e.g., unsafe equipment or operations you observed during your investigation that could lead to a serious accident if not corrected).

## 10.4. ANALYSIS

A. After all of the findings have been identified, the team needs to analyze each finding to determine the why. WHY did it happen?

B. The Team must continue to ask the question “why” to determine what findings are causes. Many investigative teams do not do this, which results in flawed recommendations that do not get to the root of the problem.

1. The "why" of human errors can be divided into four categories: standards failure, training failure, leader failure, and individual failure.

a. Standards Failure - Policies do not exist, or policies exist, but are not clear or practicable.

b. Training Failure - Policies exist, but are not known, or ways to achieve the policies are not known.

c. Leader Failure - Policies are known, but not enforced.

d. Individual Failure - Policies are known, but not followed.

2. Material failures must also be investigated closely. Why did the material fail? While it is possible to have a totally unexpected failure, many times there are contributing factors that were known before the accident.

3. Environmental conditions occasionally are the cause of an accident. A lightning strike is a classic example. When this occurs, look for human errors that may have exposed the employee to the environmental hazard.

## 10.5. RECOMMENDATIONS

A. For each cause or "other" finding identified, the team recommends a course of action which has the best potential for correcting or eliminating it. It is rare to not have a recommendation for a finding that contributed to or caused an accident. It is also important to specify who should take the corrective action. These recommendations, once validated and approved by the Designated Agency Safety and Health Official (DASHO), will be assigned to the appropriate parties for action and their progress tracked.

B. Recommendations can vary widely in their scope and who is assigned responsibility for implementing them. The Bureau level or organization assigned responsibility for the corrective action should have sufficient authority to implement the correction. In some cases, more than one level in the Bureau or even other agencies will have action responsibility.

C. The don'ts of making recommendations:

1. Recommendations should not focus on punitive steps addressing an individual's failure in a particular case.

2. Do not recommend briefing unit personnel on the accident. Such briefings are a basic management responsibility and a normal function of safety and health managers at all organizational levels.

3. Do not recommend sweeping or general recommendations that cannot be closed out at the assigned action level(s).

4. Do not recommend that a new policy, regulation, or SOP be written when existing guidance exists, but was not followed.

5. Vague recommendations addressing the importance of simply doing one's job properly are also inappropriate. Allow for definitive completion of each recommendation.

D. If a recommendation depends on test results or analyses that are incomplete when the Factual Report is sent in, explain this and reference the test or analysis.

E. If the test results are critical to the completion of the Factual Report, the team leader should request an extension from the individual authorizing the accident investigation (failure to incorporate critical information could result in reconvening the Serious Accident Investigation Team (SAIT) at a later date).

## 10.6. DELIBERATION PRODUCTS

A. Upon completion of the deliberations, the team should have identified the following:

1. A chronology of the accident that includes findings that outline:
  - a. Events leading up to the accident
  - b. The accident sequence
  - c. Rescue and recovery actions after the accident
2. The events that were directly responsible for the fatality, injury, or damage (Causes)
3. Recommendations for correcting the causes and "other" findings identified
4. A list of findings that were present, but did not contribute to the event

## Chapter 11—Reports and Briefings

### 11.1. INVESTIGATION REPORTS

This chapter discusses the various reports that are generally prepared during an accident investigation. Exhibits at the end of the chapter provide sample formats for your use.

A. Preliminary Report (24-Hour Report). This document contains the first details of the accident. It is normally prepared by the manager of the office sustaining the accident and transmitted to the Bureau Safety Manager and to the Director, Office of Fire and Aviation (for fire accidents), within 24 hours. If there is a delay in sending this report, the Team Leader can prepare and transmit it within 24 hours after the team arrives. It provides preliminary, factual information about the accident and may contain preventive measures or recommendations of an emergency nature. This information does not become part of the Factual Report, but is retained as part of the case file (See Exhibit 11-1).

B. Expanded Report (72-Hour Report). This document contains a brief narrative of the accident based on factual information gathered onsite. It usually contains the number of victims, names of victims (if next of kin notified), severity of injuries or property damage, and status of the investigation (e.g., site surveyed, data collection ongoing, witnesses being interviewed). It is drafted by the Chief Investigator, working closely with the Team Leader, within 72-hours after arriving at the accident site and is released under the signature of the Team Leader. The Team Leader sends the Expanded Report to the Bureau Safety Manager and to the Director, Office of Fire and Aviation (for fire accidents). This information does not become part of the Factual Report, but is retained as part of the case file (See Exhibit 11-2).

C. Safety Alert. If a safety hazard or action item is identified during the course of the accident investigation that requires immediate action, a Safety Alert will be developed to address the concern. Proposed safety alerts will be submitted to the Bureau Safety Manager or Office of Fire and Aviation (for fire related alerts) for consideration and national distribution as applicable. (See Exhibit 11-3).

D. Final Report. After completion of the deliberations, the Team Leader, along with the Chief Investigator, will draft the final report. Depending upon the severity and complexity of the event, it may be wise to have the report reviewed by an editor. If one is available locally, or has been assigned to the team, use that person. Otherwise, the report may be sent to the Office of Fire and Aviation, External Affairs Office, for review and formatting. When an editor is used, the Serious Accident Investigation Team (SAIT) should review and approve the revised version. The final report consists of two parts, the Factual Report and the Management Evaluation Report.

## 11.2. FACTUAL REPORT

A. The purpose of the Factual Report is to provide a narrative of the events leading up to, during, and after the accident. It is based on an examination of technical and procedural issues. Only the facts go into this report; do not include inferences, conclusions, causes, or recommendations. The report should provide:

1. An executive summary of the event
2. A chronology of the accident sequence
3. Any post-accident actions (e.g., emergency response attributed to survival of victim)
4. Attachments or addendum essential to support the factual information

B. The Team Leader or the Chief Investigator will prepare the Factual Report using the following format (see Exhibit 11-4).

1. Cover. Self-explanatory.

2. Title Sheet. The Freedom of Information Act Disclaimer Statement (“This document contains materials for internal agency use only and is not releasable under the Freedom of Information Act”), the Privacy Act Statement, the name of the accident or the incident, the date of accident or incident, and the list of investigation team members and their respective agencies.

3. Table of Contents. Include page numbers.

4. Executive Summary. A brief description of the facts involved in the accident.

5. Narrative. A detailed chronological narrative of the events leading up to and including the accident, as well as rescue and medical actions taken after the accident. This section should spell out the who, what, when, and where in as much detail as possible.

6. Investigation Process. A brief narrative stating that the team was assigned to investigate the accident. It should include a standard statement that human, material, and environmental factors were considered. If one of these factors is determined to be non-contributing to the accident, it should be addressed first and discounted. For example, if the investigation revealed that there were no environmental findings that contributed to the accident, simply state that fact and move on to the next factor. Human factors or material factors paragraphs should not be formulated so as to draw conclusions, nor should they contain adjectives or adverbs to describe and thus render opinion into pertinent facts. Keep it simple. If the particular system or factors were not involved, say it simply.

7. Findings. Each finding is a single event or condition. Each finding is an essential step in the accident sequence, but each finding is not necessarily causal.

8. Maps/Illustrations/Photographs. Graphic information used to document and visually portrays facts.

9. Appendices. Excerpts, test results, factual data, and documents used to support the facts surrounding the accident that were used as reference information.

10. Records. Factual data and documents used to substantiate facts involving the accident.

### 11.3. MANAGEMENT EVALUATION REPORT

A. The Management Evaluation Report is intended for internal use only and explores management policies, practices, procedures, and personal performance related to the accident. It takes the findings identified in the factual report and categorizes them for management. This report may contains:

1. Executive Summary
2. Findings identified in the Factual Report
3. Causes of the accident
4. Conclusions and observations
5. Confidential information
6. Recommendations for corrective measures
7. Other findings, which if left uncorrected, could lead to future accidents.

B. The Team Leader or Chief Investigator will prepare the Management Evaluation Report using the following format (see Exhibit 11-5).

1. Cover. Self-explanatory.

2. Title Sheet. The Freedom of Information Act Disclaimer Statement - "This document contains materials for internal agency use only and is not releasable under the Freedom of Information Act," the Privacy Act Statement, the name of the accident or incident, the date of the accident or incident, and the list of investigation team members and their respective agency.

3. Table of Contents. Include page numbers.

4. Executive Summary. Consists of a brief summary of the facts involving the accident.

5. Findings. From the Factual Report.

6. Causes. A cause is a deficiency that the correction, elimination, or avoidance of would likely have prevented or mitigated the accident or significant injury.

7. Recommendations. Recommendations are prevention measures that management may take to prevent similar accidents. They must be reasonable, feasible, relate to the cause(s) of the accident, and allow for definitive closure. Every cause need not have a recommendation.

8. Other Findings. Other findings that did not contribute to the accident but, if left uncorrected, could lead to other accidents.

9. Enclosures. Information used to support the recommendations that were not included in the Factual Report.

#### 11.4. MINORITY REPORT

Team members should be advised that, if they are not in agreement with the factual and management reports, they may submit a minority report to the Team Leader, which will be included with the Management Evaluation Report. This report will:

- A. Only address points of disagreement
- B. Recommend alternative conclusions
- C. Recommend alternate recommendations as appropriate
- D. Be included with the Management Evaluation Report and the office file.

#### 11.5. REPORT DUE DATE

The SAIT will provide its Final Report, which consists of the Factual and Management Evaluation Reports, to the Bureau Designated Agency Safety and Health Official (DASHO) within 45 calendar days of the accident. In extreme circumstances, the Team Leader may request a short extension from the Bureau Safety Manager.

#### 11.6. DISTRIBUTION OF REPORTS

Upon completing the investigation, the Team Leader will forward three copies of the Factual and Management Evaluation Reports to the Bureau Safety Manager, Director, Office of Fire and Aviation for fire Serious Accident Investigation Teams. The report will be processed in accordance with DOI 485 DM.

#### 11.7. DISPOSITION OF REPORT/CASE FILE.

A. The Factual Report may be released to the public and other agencies for use as an accident prevention tool.

B. The Management Evaluation Report (MER) will not generally be released to other agencies or the public because it contains opinions and recommendations for internal use only. The MER of Fire investigation reports will generally be released within the interagency fire community.

C. The Bureau Safety Office is the “office of record” for accident files. A case file containing the Factual Report, Management Evaluation Report, and data that was gathered during the investigation, but is not included in the report, will be sent to the Bureau Safety Office by traceable means.

D. Physical evidence will be returned to the property manager, insurance company, or owner under signed receipt. Return of contractor property will be coordinated through the appropriate contracting officer. All items that should be kept as evidence will be sent to the Bureau Safety Office and kept with the case file.

#### 11.8. RELEASE OF ACCIDENT REPORTS AND DOCUMENTS

Any request made under the Freedom of Information Act (FOIA) for copies of accident Management Evaluation Reports and supporting documents shall be forwarded immediately to the appropriate FOIA Officer. These documents may contain privacy or other information that may be exempt from mandatory disclosure under FOIA.

#### 11.9. INVESTIGATION TEAM CLOSEOUT BRIEFING

A. The purpose of the closeout briefing is to tie up loose ends and critique the team’s performance. The Team Leader should facilitate the closeout briefing. Exhibit 11-6 is a checklist that should help ensure that the closeout covers the appropriate items. The closeout should cover:

1. Collection and destruction of all field notes
2. Cleaning and turning in all equipment
3. Follow on assignments for members after leaving the scene
4. Critique of the investigative process(es) used
5. Critique of the team’s performance

B. The critiques are performed to ensure that any lessons learned from the investigation can be captured. One effective way to do this is to simply have each member of the team identify three things they liked about the process and three things they would like to see improved.

C. Suggestions for process improvement should be sent to the Bureau Safety Office and/or the Office of Fire and Aviation.

D. The possible need for critical incident stress debriefing (CISD) for team members should be discussed. If there is an interest, the Team Leader is responsible for ensuring that a CISD is scheduled and that team members attend.

#### 11.10. CLOSEOUT BRIEFINGS WITH EXTERNAL (TO THE TEAM) ENTITIES

A. The Team Leader will conduct the closeout briefing; however, the Chief Investigator will likely be involved in a support role (see Exhibit 11-7).

B. The Team Leader should stress the fact that the purpose of the investigation, the report, and the supporting material is accident prevention only.

C. The closeout briefing with the unit sustaining the accident should cover:

1. Unit support to the investigation. It would be appropriate to address any outstanding support that you received from the unit.
2. The timeline of the accident
3. Significant findings; particularly those that the unit should take immediate action on
4. The cause(s) of the accident
5. Other findings, which if left uncorrected, could lead to future accidents and any recommendations that have been identified.

D. The Team Leader should describe the process and timeline that is required to get the report to the appropriate agencies for approval/signature, and when they should see a signed report. The Team Leader should also add that there is no need for the unit to wait until the report is signed to take appropriate action on identified recommendations.

E. The Team Leader and/or Chief Investigator may be requested by the Bureau Director to make oral presentations to management on the opinions and recommendations included in the report.

1. Upon request by other agencies (e.g., OSHA, State organizations), a formal presentation may be provided, detailing the findings of the investigation.
2. Upon completion of the investigation, the Bureau Director may be requested to personally brief the Secretary to explain the accident and corrective actions.

3. It is likely that the Team Leader and the Chief Investigator will be asked to participate in these briefings.

## Chapter 11—Reports and Briefings

### Exhibit 11-1

#### 24-Hour Report Cover Letter and Format

To: (Official Authorizing the Investigation)

Subject: Preliminary (24-Hour) Report

#### THE FOLLOWING INFORMATION IS PRELIMINARY AND SUBJECT TO CHANGE

LOCATION:

DATE OF OCCURRENCE:

TIME OF OCCURRENCE:

TEAM LEADER:

ACTIVITY:

NUMBER OF INJURIES:

NUMBER OF FATALITIES:

PROPERTY DAMAGE (such as to vessels, equipment, and structures):

NARRATIVE:

/s/ (Team Leader)

cc:

BLM Safety Manager

Official Case File

Office of Fire and Aviation Safety Manager (if a fire accident)

## Chapter 11—Reports and Briefings

### Exhibit 11-2

#### 72-Hour Report Cover Letter and Format

To: (Official authorizing the investigation)

Subject: Expanded (72-Hour) Report

NAME OF INJURED OR DECEASED (IF THE NEXT OF KIN HAVE BEEN NOTIFIED):

NARRATIVE (INCLUDE ALL OF THE 24-HOUR REPORT INFORMATION PLUS MISSION/ACTIVITY INFORMATION):

PRELIMINARY FACTUAL FINDINGS:

/s/ (Team Leader)

cc:

BLM Safety Manager

Office of Fire and Aviation Safety Manager (if a fire accident)

## Chapter 11—Reports and Briefings

### Exhibit 11-3

#### Safety Alert Format

To: Bureau of Land Management Safety Manager

Subject: Safety Alert

NARRATIVE: IDENTIFY THE BASIC CIRCUMSTANCES SURROUNDING THE INCIDENT.

FINDINGS: IDENTIFY THE FINDINGS OF FACT THAT WARRANT A SAFETY ALERT.

RECOMMENDATIONS: IDENTIFY APPROPRIATE RECOMMENDATIONS.

(The Bureau Safety Manager or the Director of the Office of Fire and Aviation will coordinate with appropriate staff and issue the Safety Alert.)

/s/ (Team Leader)

cc:

BLM Safety Manager

Official case file

Office of Fire and Aviation Safety Manager (if a fire accident)

## Chapter 11—Reports and Briefings

### Exhibit 11-4

#### Accident Investigation Factual Report

**- FOR OFFICIAL USE ONLY -**

This document contains materials for internal agency use only and is not releasable under the Freedom of Information Act.

### Accident Investigation Factual Report

(Type of Accident

(Unit, Location)

(Region/Station/Area/Institute)

(City, State)

(Date of Accident or Incident)

Privacy Act

This report contains information protected by the Privacy Act. Disclosure of protected information is a violation of the Privacy Act of 1974, as amended, (5U.S.C. § 552a).

Copy \_\_\_\_ of \_\_\_\_

## Exhibit 11-4 (cont)

### Accident Investigation Factual Report

Accident: (type of accident or incident and name of involved individual)

Location: (unit and location where accident occurred)

Date: (date of accident)

Investigation Team Leader: (name, title, location of home unit)

_____	_____
Signature	Date

Investigation Chief Investigator: (name, title, location of home unit)

Investigation Team Members:

(name, title, location of home unit)

(name, title, location of home unit)

(name, title, location of home unit)

(name, title, location of home unit)

Investigation Technical Consultants:

(name, title, location of home unit)

(name, title, location of home unit)

## **Accident Investigation Factual Report**

Table of Contents. Include page numbers.

Executive Summary. Briefly summarize the factual report in a paragraph or two.

Narrative. Place the accident chronology you developed in the deliberation phase here.

Investigation Process. Summarize the appointment of the team and what you did. Emphasize that you evaluated all of the human, material, and environmental factors surrounding the event.

Findings. Identify all of the findings that support the accident sequence. (DO NOT include causes and other findings that are not related to this accident. They both go in the Management Evaluation Report)

Maps/Illustrations/Photographs. Graphic information used to document and visually portrays facts.

Appendices. Excerpts, test results, factual data, and documents used to support the facts surrounding the accident that were used as reference information.

Records. Factual data and documents used to substantiate facts involving the accident.

## Chapter 11—Reports and Briefings

### Exhibit 11-5

#### Management Evaluation Report

**- FOR OFFICIAL USE ONLY -**

This document contains materials for internal agency use only and is not releasable under the Freedom of Information Act.

### Management Evaluation Report

(Type of Accident)

(Unit, Location)

(Region/Station/Area/Institute)

(City, State)

(Date of Accident or Incident)

Privacy Act

This report contains information protected by the Privacy Act. Disclosure of protected information is a violation of the Privacy Act of 1974, as amended, (5U.S.C. § 552a).

Copy \_\_\_\_ of \_\_\_\_

## Exhibit 11-5 (cont)

### Management Evaluation Report

Accident: (type of accident or incident and name of involved individual)

Location: (unit and location where accident occurred)

Date: (date of accident)

Investigation Team Leader: (name, title, location of home unit)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Investigation Chief Investigator: (name, title, location of home unit)

Investigation Team Members:

(name, title, location of home unit)

(name, title, location of home unit)

(name, title, location of home unit)

(name, title, location of home unit)

Investigation Technical Consultants:

(name, title, location of home unit)

(name, title, location of home unit)

## Management Evaluation Report

Table of Contents. Include page numbers.

Executive Summary. Briefly summarize the entire report in a paragraph or two. The factual data portion should be identical to what is in the Factual Report.

Findings. Each finding is a single event or condition. Each finding is an essential step in the accident sequence, but each finding is not necessarily causal.

Causes. A cause is a deficiency that the correction, elimination, or avoidance of would likely have prevented or mitigated the accident or significant injury.

Other Findings. Include the "other findings" not related to the accident here along with your recommendations.

Recommendations. There will normally be a recommendation for each finding. List the findings in the same order as the Factual Report has them listed. Put the Team's recommendations under that finding and specify who has the responsibility for implementing the recommendations.

Other Information (Optional). This paragraph can contain opinions by the investigators, conclusions and observations, and confidential information that the team feels is relevant for management's consideration.

Enclosures. Enclose witness statements and other non-factual data needed to support your recommendations that you did not put in the Factual Report.

## Chapter 11—Reports and Briefings

### Exhibit 11-6

#### Investigation Team Closeout Briefing

##### INVESTIGATION TEAM CLOSEOUT BRIEFING

The purpose of the closeout is to tie up loose ends and critique the team's performance. Typically the following items are covered:

- Collection and destruction of all field notes
- Cleaning and turning in all equipment
- Follow on assignments for members after leaving the scene
- Critique accident process used
- Critique team performance
- Discuss need for critical incident stress debriefing (CISD) for members

Suggestions for process improvement that comes out of the closeout with the team should be sent to the Bureau Safety Office or the Office of Fire and Aviation.

Discuss the possibility of another closeout after the report is published.

## Chapter 11—Reports and Briefings

### Exhibit 11-7

#### Closeout Briefing with Management

##### CLOSEOUT BRIEFING WITH MANAGEMENT

(Note: This briefing will be prepared by the Team Leader with the assistance of the Chief Investigator.)

The most important thing to remember about closeout briefings is to use a presentation method you are comfortable with. The Chief Investigator may present a portion of the outbrief if you like. However, remember that this briefing is yours. Many times you will make an impression on management that is far more powerful than the one a Chief Investigator can make.

You should reemphasize that the purpose of the investigation, the report, and the supporting material is for accident prevention purposes only.

The outbrief with the unit should cover the timeline of the accident, any significant findings identified, and any preliminary recommendations made by the SAI Team that need to be implemented immediately. Briefings with groups other than the unit sustaining the accident will generally not include recommendations.

Disciplinary actions should not be discussed—at all. Questions and solicitations for your opinion in this matter should be handled very carefully. A separate investigation (e.g., Board of Inquiry) may be initiated by the Bureau Director to determine if any disciplinary actions are appropriate.

It would be appropriate to address any outstanding support that you received from the unit during the outbrief. Be careful about addressing any negative issues with this subject; it may not be productive.

You should describe the process and timeline that you will follow to get the report to the appropriate agencies for approval/signature, and when they should see a signed report. You should also add that there is no need for the unit to wait until the report is signed to take appropriate action on the identified recommendations.

You have developed some opinions, thoughts, or ideas about the incident by this time. Use your judgment in what to include and not include. Your opinions and insights may have a significant

impact on the unit's ability to ensure that this type of accident never occurs again. On the other hand, if you ramble on over a pet peeve, you could also damage your credibility.

## Chapter 12—Accident Review Board (Forest Service Only)

### 12.1. ACCIDENT REVIEW BOARD

When investigating Forest Service accidents, the Factual Report and Management Evaluation Report are not final. They are sent to an Accident Review Board. The purpose of the Accident Review Board is to review the draft Factual and Management Evaluation Reports. They review, accept, reject, or modify recommendations contained in the Management Evaluation Report. Development of the Accident Prevention Action Plan is the last task of the Board. This action plan is based on the recommendations approved by the Accident Review Board.

Note: The BLM's Board of Inquiry is completely different than the Forest Service Accident Review Board. The Board of Inquiry has nothing to do with safety or accident prevention; it examines the possibility of employee misconduct.

### 12.2. ACCIDENT REVIEW BOARD COMPOSITION

A. The approving authority at the level authorizing the investigation will designate a Chair and Accident Review Board Members within 21 days of the completion date of the Factual Report and Management Evaluation Report.

B. The Accident Review Board is made up of representatives with expertise and knowledge in applicable areas. Accident Review Board membership is held to a minimum (usually about five). There will be times when non-board members will need to be present and make comments during the Accident Review Board proceedings. Such participation is at the discretion of the Chair. However, attendees must be limited to individuals who have a connection to the accident or incident and who can contribute in a positive manner to the process. Parties to litigation, insurance representatives, and news media are specifically prohibited from attending any portion of the proceedings.

### 12.3. DUTIES AND RESPONSIBILITIES

A. Chair. The Chair, who is a voting member of the Board, is appointed by the approving authority at the level authorizing the investigation and is charged with managing the Accident Review Board proceedings. The Chair will transmit the final Factual Report and Management Evaluation Report, recommendations, and action plans from the Accident Review Board to the approving official.

B. Management Officials. Management Officials are voting members of the Board who are selected from outside the unit where the accident occurred. They provide information and advice to the Accident Review Board on management-specific policies and procedures as related to the accident.

C. **Safety and Health Manager.** The Safety and Health Manager is from the organizational unit that initiated the investigation. This person is not a member of the Board and, therefore, does not vote. The Safety and Health Manager provides advice on safety and health matters as they relate to the accident and facilitates the process of the Board.

D. **Local Management Representative.** A Local Management Representative is selected to provide information and advice to the Accident Review Board on local management-specific policies and procedures as related to the accident. The Local Management Representative is not a member of the Board and, therefore, does not vote.

E. **Team Leader.** The Team Leader presents the draft Factual and Management Evaluation Reports to the Accident Review Board, and provides assistance with the Accident Prevention Action Plan development. He or she is not a member of the Board and does not vote.

F. **Chief Investigator.** The Chief Investigator assists the Team Leader in the presentation of the draft Factual and Management Evaluation Reports. He or she is not a member of the Board and does not vote.

G. **Technical Specialists.** Technical Specialists are selected to provide technical assistance to the Accident Review Board within their area of expertise as needed. They are not voting members of the Board.

H. **Recorder.** The Recorder will document the decisions and action plans of the Accident Review Board and submit that documentation to the Chair of the Accident Review Board. The Recorder is not a member of the Board and, therefore, does not vote.

#### 12.4. CONVENING THE ACCIDENT REVIEW BOARD

A. The Chair calls the Accident Review Board to order, introduces the Accident Review Board Members and attendees, and discusses the purpose and objectives of the accident review process.

B. The Team Leader and Chief Investigator present the draft Factual Report. The Chair opens the draft Factual Report for discussion and comment by the Accident Review Board Members. The Accident Review Board Members either accept or reject the draft Factual Report.

C. The Team Leader and Chief Investigator present the draft Management Evaluation Report to be finalized by the Accident Review Board. The Accident Review Board accepts, rejects, modifies, or makes new recommendations. Recommendations must be reasonable, feasible, and relate to the cause(s) of the accident. However, every cause need not have a recommendation. A reasonableness test must be applied to each recommendation. Resources required to implement a recommended corrective action must be weighed against value received, practicality, and allow for definitive closure. Examples of possible recommendations:

1. Referral to a management official for corrective action(s) related to hazardous conditions or practices
2. Referral to a staff area (e.g., Health and Safety, MTDC, or a Resource Staff) for corrective design of equipment or job procedures
3. Referral to a specialized team for further analysis to determine why specific causal factors existed (such a team would include specialists in the areas of concern, e.g., management, contracting, procurement, personnel, budget and finance, resource specialists, health and safety, engineering)

D. Vague recommendations, which address the importance of simply doing one's job properly, are inappropriate. Issues not directly related to the accident's cause must be administratively separated from the accident prevention recommendations. These issues shall be addressed in a separate transmittal letter from the Chair to the approving authority, recommending that a collateral investigation be conducted to look into the issue(s).

E. From the recommendations contained in the Management Evaluation Report, the Accident Review Board develops a draft Accident Prevention Action Plan to prevent similar accidents. The final Management Evaluation Report includes probable cause(s), contributing factors, and recommendations.

## Chapter 13—Follow Up

### 13.1. GENERAL

All accident reports must be followed up on and closed out in accordance with 485 DM Chapter 7, Appendix 1. Although this occurs after the Serious Accident Investigation Team (SAIT) has completed its work, and is not a function of the SAIT, it is important that the process be understood.

### 13.2. REQUIREMENTS

A. The SAIT Investigation Final Report, consisting of the Factual Report and the Management Evaluation Report, is due to the Bureau Safety Manager within 45 calendar days of the accident occurrence, the Bureau Safety Manager will review the report and forward it to the Designated Agency Safety and Health Official (DASHO).

B. Within 21 working days of receipt of the Final Report, the First Executive Level Manager (a Region, State, Area, or Division Director who reports directly to the Bureau head) whose organization incurred the accident must develop a corrective action plan and forward it to the Bureau Safety Manager who will review it and forward it to the Bureau DASHO. This individual is also responsible for implementing the corrective action plan.

C. The Bureau DASHO, or their designee, must forward the reports, along with the corrective action plan, to the Departmental DASHO. The transmittal will include a statement of concurrence or non-concurrence with the SAIT opinions and recommendations, identify any corrective actions already taken or proposed, and identify recommendations for actions by higher management and/or other agencies. This constitutes the final, complete, serious accident report to the Department.

D. Within 90 days of the accident, the First Executive Level Manager, whose organization incurred the accident, will personally brief the Agency head on the accident, with an emphasis on identifying and correcting any management deficiencies contributing to the accident.

E. The Agency Administrator will provide a status report to the Bureau DASHO, through the First Executive Level Manager, at least every 90 days until the appropriate corrective actions are implemented.

F. Once all corrective actions have been accomplished, the Bureau Director, in conjunction with the Bureau DASHO, will notify the Departmental DASHO, the Office of the Solicitor, and others as appropriate. At this point the case is closed.